



FRIDAY, OCTOBER 3.

## JOHN W. GARRETT.

Mr. John W. Garrett, for 26 years President of the Baltimore & Ohio Railroad Co., died Sept. 26 at his summer cottage at Deer Park, Md. For the following account of his life and work we are indebted to the *Baltimore Day*:

No man in Baltimore has been so closely or so extensively identified with the progress of the city as has Mr. John W. Garrett. The story of his life given below speaks for the man, and no comment is necessary. Mr. Garrett was born in Baltimore July 31, 1820. He was the second son of the late Robert Garrett, who was a wealthy merchant, largely engaged in foreign and domestic commerce, and who enjoyed the respect and confidence of his fellow-citizens to a large degree. Mr. Garrett was educated in Baltimore, and completed his studies at Lafayette College, Pennsylvania. On his return home he entered his father's counting-room, and entered into partnership with his father and his brother, Henry S. Garrett. He was then only 19 years old. The firm was known as Robert Garrett & Sons. Mr. Robert Garrett was a man of great foresight. He thoroughly knew the unlimited resources and production of the Western States, and no one was better acquainted than he with the advantages which Baltimore possessed as a market for that region. He cultivated close commercial relations between Baltimore and the section west of the Allegheny Mountains, and to all schemes looking to opening communication by canal and railroad he gave his active support. John W. Garrett, with his brother Henry S. Garrett, shared the opinion of his father and devoted his attention to the same great project, at the same time enlarging the scope of the business of the firm, which became the active representatives of George Peabody & Co., of London, and other well-known firms in Europe. Mr. Garrett early became a close observer of the progress of the construction of the Baltimore & Ohio Railroad. This road, though nominally opened to Wheeling in 1852, remained embarrassed and practically ineffective at as late a period as 1856. Although solicited at an early day to take part in the affairs of the company, Mr. Garrett declined to enter into the concerns until 1857, when he was induced to attend a meeting of the stockholders, which had been called to consider its affairs. At that meeting he took an active part in the discussion which arose. He held that although the stock of the company was owned in part by the state of Maryland and in part by the city of Baltimore, as well as by individual citizens, yet the nature of the ownership of each proprietor was the same, that each was alike interested in the profitable management of the company, and that a similar obligation was devolved upon the representatives of each class of owners. He insisted that it was the duty of every board of directors, by whatever constituency its members were elected, to employ to the best advantage the property committed to its charge, in order to maintain a just proportion between the expenses and revenues of the company. These opinions, embodied in resolutions passed at that meeting, form the groundwork of that policy which has made the Baltimore & Ohio Railroad Co. an unrivaled example of successful management. In October, 1857, Mr. Garrett became a director.

A year later Mr. Garrett became President of the road. On Nov. 17, 1858, Chauncey Brooks resigned the presidency and Mr. Garrett was elected to fill his place. From that time on the history of Mr. Garrett's life is the history of the Baltimore & Ohio Railroad Co., and the story of the railroad company to the present day is the record of his remarkable life. The period of railroad expansion had just set in when Mr. Garrett assumed direction of the affairs of the company, and he found himself burdened with duties and responsibilities which were scarcely contemplated by his predecessors in office. Difficult as was the task to which these able and energetic men had devoted the best years of their lives, it was not to be compared to the work which confronted the new President at the very outset of his official career. Mr. Garrett was then but 38 years of age—a young man to undertake such a herculean task, and one can scarcely sufficiently admire the foresight and skill, the resolute purpose and the unwavering faith of the man who took hold of the mighty work which so far had triumphed over every obstacle and had resulted in the construction of an iron highway between the Chesapeake and the Ohio. The work which had already been done was a gigantic one, but it remained for Mr. Garrett to carry the road to the great West and to bring to it the tributaries which now furnish the bulk of its traffic.

The practical wisdom of Mr. Garrett was shown at the close of his first year as President, when the increase in the aggregate comparative net gains of the company was over \$700,000 more than the net yield of the preceding 12 months. It is needless here to say that the gains have steadily increased. Nor is it necessary to trace the stages through which the stock quoted at \$46 per share in 1858 rose to a stiff holding price of \$174 yesterday. Such results are at least witnesses to the sagacity of Mr. Garrett's administration. He succeeded in harmonizing the previously conflicting interests and gathered around him a staff of competent officials who were in full sympathy with his views. When the war broke out the road was on the flood tide of its prosperity. Then began an era which not only proved the most trying in its history, but also entailed upon Mr. Garrett onerous duties and enormous responsibilities such as few men have been called upon to undergo. He met them with a wisdom and courage that was superior to all emergencies.

The Baltimore & Ohio Railroad ran through the theatre of war, and was constantly subjected to the infliction of military necessity. For four years contending armies swept across it. Consequently miles of track were torn up, and valuable engines and rolling stock destroyed. With the road thus constantly threatened and frequently crippled, Mr. Garrett was called upon to assist in the transportation of troops at frequent intervals. This was the case when men were hurried from the Virginia Valley to Washington after the battle of Bull Run. Again, when Banks had to be reinforced to stay the march of Stonewall Jackson. Again, after the battle of Chickamauga, when a whole army was shifted from the Army of the Potomac to Tennessee. Again, when Early had conquered Monocacy and was menacing Washington, and finally when Sheridan needed the Nineteenth Corps at Winchester. During these troublous times Mr. Garrett was frequently in consultation with President Lincoln and Secretary Stanton, who expressed in the warmest terms their appreciation of the assistance he had given them.

Such was the wonderful energy shown by President Garrett, and infused into the skillful and disciplined men under his control, that the practical utility of the road was never lost. When disasters occurred they had been so far foreseen and provided for that each severed section of the road seemed

to be possessed of its own organization and equipment, and able to do the enormous military business intrusted to it as perfectly as if the whole road had remained entire. No incident of the war, no personal, public or local excitement interfered with the operations when there was any possibility of conducting them as usual. The President, cheerfully sustained by the majority of the board, remembered that he was responsible primarily for the great property which had been intrusted to his charge, and he administered it in strict subordination to those principles which he had prescribed as proper at the first stockholders' meeting which he had attended in 1857.

At the conclusion of the war the road entered upon a period of greater enterprise and more abundant prosperity.

The story of the accomplishments of Mr. Garrett while President of the road is one that is almost marvelous. When he took charge of the vast corporation the road, as stated, only reached to the Ohio. Although it was the first railroad projected to the West, it was not the first to enter and "occupy the land." While the company waited six years at Cumberland for permission to pass through the state of Virginia, Western energy and enterprise, aided by Eastern capital, began the construction of a system of railroads which sent its ramifications through the whole Mississippi Valley, and formed connections with the trunk lines from the East that first entered the much-coveted territory. Long before the Main Stem of the Baltimore & Ohio reached the Ohio River two great railroads were draining the Ohio Valley and the whole of the lake region. By a process of consolidation the stronger of the Western railroads took possession of the weaker, and these were in turn swallowed up by the lines whose geographical location made them desirable lines in the great Northern chain. So it was when Mr. Garrett first viewed the field in which he has since won so much renown, he saw that all the currents of Western traffic had turned from Baltimore, and that the money expended in carrying the road West would be practically lost unless a new system of Western roads was organized and made tributary to the main line. He addressed himself to that colossal undertaking, and in the extraordinary development of the domestic and foreign trade of Baltimore during the past 15 years, as well as in the solid prosperity of the Baltimore & Ohio Co., are seen the substantial results of his labors. The Western branches of the company have the most productive sections of Ohio, Indiana and Illinois, and tap the great granaries on the Mississippi and on the lakes, while a continuous procession of laden trains bring wheat and corn to the great elevators on the Baltimore water front.

For four or five years after the road reached the Ohio there was much met with of a discouraging character. No railroad was met at Wheeling. The Central Ohio was approaching, but the Baltimore & Ohio was obliged to loan it \$400,000 to enable it to reach the western bank of the river, and a proper connection was delayed on account of litigation. As the Parkersburg Branch approached the Ohio its projectors were astounded to see that the Marietta and Cincinnati was turned away from the point at which the two roads were to join, and its eastern terminus established 10 miles further up the river, thus leaving an ugly gap either to be filled by putting on a line of steamers or building a branch road. Prior to 1859 the western connection had not yielded results which met the general expectation.

In pursuing his aggressive policy to win back the trade Baltimore had lost Mr. Garrett met with much opposition. The city of Baltimore was a heavy stockholder in the road, and when there was a falling off in revenues the corporation suffered heavily. In order to protect the credit of the city and lighten the burden of taxation Mr. Garrett saw that the business must be enlarged and its earnings increased. To do this western connections must be carried through and freight must be taken at the schedule rates fixed by the other trunk lines. When Mr. Garrett began the organization of the splendid western system, the matter was not understood, and he was bitterly assailed for the supposed discrimination against local shippers, and especially for carrying freight to Philadelphia and New York at rates but little in excess of those charged for freight to Baltimore.

In 1860 these attacks were still being made upon Mr. Garrett, and the Legislature passed an order calling upon him to answer whether the company had not discriminated against the Baltimore in fixing its grain rate.

In answer he said: "This company does not discriminate against the city of Baltimore in the rates of freight. It has, on the contrary, been its constant effort to contribute to the welfare and prosperity of that community by making the largest practical difference in its favor. The Baltimore & Ohio Railroad Co. is one of the several great trunk lines which stretch from the seaboard to the West." After speaking of the arrangement by which the Western traffic was secured Mr. Garrett added: "The Baltimore & Ohio Railroad and Baltimore city were long the victims of the agreements made between the Northern and Western lines. The road has in consequence, as occasion required, retaliated to vindicate its real advantages. \* \* \* I deem it my duty to say to the House of Delegates that not one pound of freight is carried beyond Baltimore by reason of any policy of this company that would under any other policy come to Baltimore as a market. The battle has been to obtain the carriage of freight on its way to and from the West and Philadelphia, New York and Boston, and thus secure a profit to the state, city and private stockholders, who are all interested in the road as proprietors."

It was at the outbreak of the war, as already stated, that the substantial fruits of Mr. Garrett's vigorous administration were beginning to be plucked.

Great enterprises followed the return of peace. Bridges were built across the Ohio at Benwood and Parkersburg. At the close of the war the North German Lloyd steamship line was put in operation. The splendid piers at Locust Point were constructed. In 1867 the control of the Winchester & Potomac Railroad was secured, and since then the Winchester & Strasburg, the Strasburg & Harrisonburg and the Valley railroads have been added. In 1867 the Washington County Branch was completed, and later the Metropolitan Branch, that magnificent enterprise, was put under way and opened for travel May 25, 1873, at a cost of \$3,583,479. In 1871 the direct connection with Pittsburgh over the Connellsville Branch was secured. The route of the Connellsville road was first surveyed by General Washington in 1754.

When in 1871 the bridge at Benwood was completed the building of the Chicago Division was begun. It starts from a point on the Lake Erie Division, 84 miles north of Newark, Ohio, and extends from there in a direct line to Chicago, a distance of 243 miles. In 1874 this division was completed, and in 1875 the Baltimore & Ohio had passed more than 400 miles beyond the limits contemplated in its corporate title, and might have been appropriately called the "Baltimore & Chicago Railroad." It cost \$2,000,000 to build a branch line connecting the Baltimore & Ohio with the Marietta & Cincinnati Railroad. The other important connection of the Baltimore & Ohio is the Ohio & Mississippi, which the Baltimore & Ohio controls.

Scarcely had the Baltimore & Ohio Railroad Co. completed its most important Western connection than Baltimore took its place as the second of the seaboard cities in the grain trade.

The new Baltimore & Ohio building was completed in

1883. It is one of the most complete railroad buildings in the world and will be a lasting monument to Mr. Garrett.

The construction of the northern line to secure a direct connection with Philadelphia and New York is probably the most audacious of the many Baltimore & Ohio enterprises. It is well under way and will be in operation inside of two years. The building of the line was rendered necessary because of the purchase of the Philadelphia, Wilmington & Baltimore Railroad by the Pennsylvania Railroad Co.

In common with all other great railroads the Baltimore & Ohio has had many a tough struggle with adversity, the immediate consequences of which were sufficiently discouraging, but Mr. Garrett was equal to them all. On July 24, 1868, when the unprecedented flood swept down the Patapsco, bridges and culverts were destroyed, the track was lifted from the embankments, and damages inflicted which compelled a total suspension of travel for fourteen days. Some compensation for the heavy loss was the opportunity which the reconstruction of the road afforded for straightening the track, and getting away from the many bends in the Patapsco. The great strike of 1877 was another severe blow to the company, but since then there has been no trouble with the employees, all seeing that the company is doing all in its power by its policy and treatment for those under it.

During the past few years Mr. Garrett has left the active management of the business of the road to his son, Mr. Robert Garrett, who has shown great enterprise and qualification for the place. Mr. Garrett has traveled extensively during the last few years. His wife died from injuries received last autumn by a fall from a carriage, and this was a great shock to him. Since then he has been greatly broken down, and has been steadily failing. His family consists of three sons and a daughter, Miss Mary Garrett, who has been a constant attendant upon her father during his illness.

Although it was generally known that his health was in a precarious condition, his death came suddenly at the last, and it was not supposed until a day or two before that the end was so near.

A special meeting of the directors of the company was held Sept. 26, at which the following resolutions were unanimously adopted:

"The committee appointed to prepare resolutions expressive of the feelings of the board of directors on the loss that has been sustained in the death of John W. Garrett, the President of the Baltimore & Ohio Railroad Co., report that it would be difficult to express in formal words the sense of the loss that has been sustained, not only by the board of directors, and by the company in its charge in all its extended ramifications, but by the community which has so vital an interest in a work to which the late president not only devoted all the energies and persistent force of great talents and ability, but to which, by his unremitted labors, he may be truly said to have sacrificed his life at a time when otherwise he might still be in the enjoyment of his prime."

"When Mr. Garrett was made a director in the company to fill a vacancy created by the resignation of Mr. Andrew Gregg, in 1855, he brought to a performance of the duties of the office the knowledge that he had acquired as a member of the firm of Robert Garrett & Sons, whose large Western business made it familiar with the wants and capabilities of the vast country which, at a later date, was to find in the Baltimore & Ohio Railroad one of its most important avenues to the Atlantic seaboard. With these wants and capabilities no one was more familiar than our president, who had by extended travels beyond the Alleghenies, made himself personally familiar with them all. With him the connection with the Southwest, the West and the Northwest, which he afterward accomplished, was but the realization of the views entertained by him when, in 1855, he took charge as president of a road that was still lingering on the eastern bank of the Ohio River: nor were his efforts in that direction obstructed by rivals, who understood as well as he did the wants and capabilities that he was striving to meet and make available for the benefit of Baltimore. With steady perseverance, however, he overcame all opposition, until now our city is in daily intercourse over the roads that he prosecuted and controlled, with the lakes at Chicago, with the Pacific Ocean through St. Louis, and it may be said, through an extension still in progress, with the Gulf of Mexico at New Orleans. It was a mighty grasp that has gathered in all this from a single depot on the Ohio. But the trade that was to be thus concentrated from the West was to be provided with an outlet eastward across the Atlantic, and we find the same energy that had accomplished so much in one direction, devoting itself in another, until the grain of the West was garnered in the elevators which he provided, and the vessels from Europe were furnished with a channel and a harbor equal, if not superior, in its acceptability, to New York itself, a result which, if not brought about by the immediate agency of the company over which our late President presided, was procured through means made active by the energy and activity he infused into their application. Nor was it to the road's water approach alone that his talent and energy were devoted. The interests of the thousands of the employees which on either side of the Ohio River aided in the great work to be accomplished, became to him a work of primary importance, and at this day an association of twenty thousand workmen find their happiness and their comfort in the system originated by him for their benefit and improvement, providing for them in case of sickness, for their families in case of death, insuring their lives, and enabling every one of them to become, if he so wills it, the owner of his own home and fireside."

"Mr. Garrett was a rare and singular combination of exactitude in the minutest matters, with the broadest and most comprehensive and statesmanlike views, embracing the whole country in the grasp of its intelligence. It was the economy in details in 1858, and years afterward, which saved the company from ruin, and which, persisted in, made it what it is to-day. Nor must it be forgotten in thus enumerating the qualities and work of our late President, that he was throughout sustained by directors whose full appreciation of his work enabled him to perform it. When such a man dies it is difficult, as your committee has already said, to express in formal words the sense of a loss that has been sustained. A generation has grown up since Mr. Garrett was elected President of the Baltimore & Ohio Railroad Co., and those whose recollection enables them to appreciate the difficulties he has overcome, are passing away, but whether of the young or of the old of the present day, none will hesitate to unite in the single resolution with which the committee now conclude their report."

"Resolved, That the board of directors of the Baltimore & Ohio Railroad Co. deplore the death of their late President, John W. Garrett, not only because of the loss that they have severely sustained, but because it is one that has fallen upon a community to develop which he devoted all the powers of a great intelligence and a persistent energy which, deterred by no obstacles, had but one purpose, the giving to Baltimore the unequalled advantages of her geographical position and placing it as one of the greatest entrepôts of the world between the mighty West of our country and the transatlantic nations."

"Resolved, That the buildings and offices of the company be draped in mourning for 30 days."

"Resolved, That all departments and workshops of the



company be closed on Saturday, the 27th instant, as a mark of respect to their deceased President, except where the requirements of mercantile and competitive business render it necessary for offices to be kept open and work to be done.

"Resolved, That a copy of the proceedings be transmitted to the family of the deceased, with the expression of the profoundest sympathy of the board of directors in the loss that they have sustained."

Appropriate action was also taken by the City Council, the Board of Trade, the Corn and Flour Exchange, the Stock Exchange, and in fact by all the incorporated commercial organizations of Baltimore.

Mr. Garrett's funeral took place from his home at Montebello, near Baltimore, on Sunday, Sept. 28, and was attended by great numbers of citizens of Baltimore, by delegations of the employees of the company, and by many prominent railroad men from other cities.

### Train Accidents in August.

The following accidents to trains are included in our record for the month of August:

#### COLLISIONS.

##### REAR.

On the morning of the 1st a coal train on the Dayton Coal Co.'s road in Chattanooga, Tenn., broke in two and the rear section ran into the forward one, wrecking the engine and several cars. Two trainmen were slightly hurt.

On the morning of the 3d a passenger train on the Alabama Great Southern road ran into the rear of a freight train in Chattanooga, Tenn., damaging several cars and injuring two trainmen. There was a dense fog at the time.

Near midnight on the 6th a freight train on the Atchison, Topeka & Santa Fe road ran into a preceding freight which had been stopped at Emporia, Kan., by the breaking down of its engine. Five cars and the engine were badly damaged. The first train set back a flagman but he was not in time.

On the morning of the 10th a yard engine on the Lake Shore & Michigan Southern road ran into the rear of a freight train in the yard in Buffalo, N. Y., doing some damage.

On the night of the 10th a freight train on the Louisville & Nashville road ran into a preceding freight which had stopped near Mobile, Ala., damaging one car. It is said that the accident was caused by the flagman sent back by the first train going to sleep.

On the afternoon of the 12th a freight train on the New York Central & Hudson River road ran into a ballast train which was standing on the track in Newark, O. Both engines and two cars were slightly damaged.

On the evening of the 14th a freight train on the Cincinnati, Indianapolis, St. Louis & Chicago road ran into a preceding freight near Hazelrig, Ind., wrecking an engine and several cars.

On the evening of the 14th a freight train on the Pennsylvania Railroad ran into a preceding freight at Meadows, N. J., wrecking several cars loaded with peaches.

Very early on the morning of the 17th a freight train on the Chicago, Burlington & Quincy road broke in two near Whitehall, Ill., and the rear section afterwards ran into the forward one, wrecking several cars.

On the morning of the 17th a freight train on the Louisville & Nashville road ran into the rear of a preceding freight which had stopped at Worthville, Ky., for water, damaging the engine and several cars, and injuring a brakeman.

Early on the morning of the 18th, as a freight train on the Richmond & Danville road was standing at Salisbury, N. C., the trainmen being all at breakfast, the engine started from some cause unknown. In a short time the engine attained considerable speed and it is said to have been running nearly 40 miles an hour when it struck the rear of a preceding freight which had stopped at Yadkin River to take water. The runaway engine and several cars were completely wrecked and the conductor of the other train was killed.

On the morning of the 19th a yard engine on the Louisville, New Albany & Chicago road ran into the rear of a freight train in the yard at New Albany, Ind., doing some damage.

On the morning of the 19th a freight train on the Pennsylvania Railroad ran into a preceding freight near Bird-in-Hand, Pa., wrecking several cars. The wreck caught fire and was entirely destroyed.

On the afternoon of the 19th a freight train on the New York Central & Hudson River road ran into a preceding freight in Rome, N. Y., damaging several cars slightly.

On the night of the 19th a work train on the Central Pacific road ran into a freight train which had stopped at Emigrant Gap, Cal., for water. The engine was badly damaged.

On the morning of the 21st a freight train on the Cincinnati, Indianapolis, St. Louis & Chicago road broke in two near Ogden, Ind., and the rear section afterward ran into the forward one, wrecking several cars.

On the afternoon of the 22d a freight train on the Pennsylvania Railroad ran into the rear of a preceding freight in Columbia, Pa., and the engine and four cars were wrecked. The wreck caught fire and was burned up.

On the night of the 23d a passenger train on the Chesapeake & Ohio road ran into a freight train near Richmond, Va., wrecking the engine and several cars. The conductor of the freight was killed and the engineer of the passenger train was seriously injured.

On the morning of the 29th a passenger train on the Western Maryland road ran into another passenger train which was just backing into a switch at Howardville, Md. Both trains were somewhat damaged.

On the morning of the 30th a freight train on the Boston & Lowell road broke in two near Grafton, N. H., and the rear section afterward ran into the forward one, wrecking several cars. A tramp who was stealing a ride was fatally hurt.

##### BUTTING.

On the morning of the 8th there was a butting collision between a freight train and a gravel train on the Wisconsin Central road near Chippewa Falls, Wis. Both engines were wrecked and a brakeman killed.

On the afternoon of the 10th there was a butting collision between two passenger trains on the Atlanta & West Point road near East Point, Ga. Both engines and several cars were damaged and five passengers slightly hurt.

On the afternoon of the 16th there was a butting collision between two freight trains on the International & Great Northern road near Austin, Tex. Both engines and several cars were wrecked, the fireman killed and the engineer badly hurt.

On the evening of the 18th there was a butting collision between two freight trains on the St. Joseph & Western road in Hanover, Kan., by which both engines were damaged.

On the night of the 18th there was a butting collision between two freight trains on the Missouri, Kansas & Texas road near Southville, Mo. Both engines and several cars were wrecked, the fireman killed and the engineer hurt.

On the evening of the 25th there was a butting collision between a passenger train and a switch engine on the Lake

Shore & Michigan Southern road in Buffalo, N. Y., caused by a misplaced switch, which threw the switch engine over upon the main track. Both engines were slightly damaged, and the fireman hurt.

#### CROSSING.

On the morning of the 21st, an Illinois Central passenger train ran into an excursion train on the Indiana, Illinois & Iowa road at the crossing of the two roads in Kankakee, Ill. Several cars were wrecked, a passenger killed, two others fatally hurt, and fifteen less severely injured.

On the night of the 26th a freight train on the Pittsburgh, McKeesport & Youghiogheny road ran into a Baltimore & Ohio freight at the crossing of the two roads at Street's Run, Pa. An engine and several cars were damaged. There was a dense fog at the time.

#### DERAILMENTS.

##### BROKEN RAIL.

Very early on the morning of the 6th a passenger train on the Missouri, Kansas & Texas road struck a broken rail near Whitesboro, Tex., and the entire train was thrown from the track, several cars being damaged. The express messenger was killed and five passengers slightly hurt.

On the afternoon of the 14th a passenger train on the Wabash, St. Louis & Pacific road struck a broken rail near Kirksville, Mo., and two cars were thrown from the track. Five passengers were slightly hurt.

##### BROKEN BRIDGE.

On the afternoon of the 4th a freight train on the Western North Carolina road broke in two near Balsam Mountain, N. C., and the rear cars ran down the steep grade, attaining a tremendous speed until they struck a trestle when they broke through and went down, wrecking several cars and killing the conductor.

On the afternoon of the 15th a bridge on the Pine Creek road near Williamsport, Pa., gave way under a coal train and 14 cars went down into the creek. The conductor and a brakeman were hurt.

On the evening of the 21st a small bridge on the Illinois Central road near Patoka, Ill., gave way under a freight train and the engine went down and was wrecked, killing the engineer.

#### SPREADING OF RAILS.

On the morning of the 3d a construction train on the Otumwa, Cedar Falls & St. Paul road was thrown from the track near Belle Plain, Ia., by the spreading of the rails. Two men were hurt.

On the night of the 4th several cars of a freight train on the Chicago, Milwaukee & St. Paul road were thrown from the track at Wyocena, Wis., by the spreading of the rails.

On the morning of the 9th an excursion train on the Gettysburg & Harrisburg road was thrown from the track near Carlisle Junction, Pa., by the spreading of the rails. The engine upset down a bank, and four cars left the track. The conductor and fireman were killed, and the engineer slightly hurt.

On the night of the 14th, four cars of a circus train on the Peoria, Decatur & Evansville road were thrown from the track near Decatur, Ill., by the spreading of the rails.

On the morning of the 26th the engine of a freight train on the Elmira, Cortland & Northern road was thrown from the track near Cazenovia, N. Y., by the spreading of the rails.

On the night of the 28th a work train on the Indianapolis & St. Louis road was thrown from the track at Gays, Ill., by the spreading of the rails, wrecking ten cars and killing a brakeman.

On the morning of the 30th a passenger train on the Cleveland & Marietta road was thrown from the track near Kimbolton, O. Two cars were badly damaged, an express messenger killed and a passenger fatally hurt. The accident is said to have been caused by the rails spreading.

#### BROKEN AXLE.

Very early on the morning of the 2d a passenger train on the Southern Kansas road was thrown from the track near Grand Summit, Kan., by the breaking of an axle. Two cars were badly wrecked and twelve passengers injured.

On the morning of the 8th four cars of a freight train on the Jeffersonville, Madison & Indianapolis road were thrown from the track and wrecked near Dupont, Ind., by a broken axle.

On the evening of the 9th the locomotive of a passenger train on the Coney Island Elevated road was thrown from the track at Brighton Beach, N. Y., by a broken axle and fell 20 ft. to the ground below. The engine was completely wrecked and the engineer fatally scalded.

On the morning of the 13th two cars of a passenger train on the New York, New Haven & Hartford road were thrown from the track near Stamford, Conn., by a broken axle.

On the evening of the 13th several cars of a freight train on the Pennsylvania Railroad were thrown from the track near Colfax, Pa., by a broken axle.

#### BROKEN TRUCK.

On the morning of the 3d two cars of a passenger train on the Galveston, Harrisburg & San Antonio road were thrown from the track in San Antonio, Tex., by the breaking of a truck.

On the evening of the 19th five cars of a freight train on the Chicago & Northwestern road were thrown from the track near Fond du Lac, Wis., by a broken truck.

On the night of the 21st three cars of a freight train on the New York Central & Hudson River road were thrown from the track near Lockport, N. Y., by a broken truck. The conductor was slightly hurt.

#### BROKEN COUPLING.

On the morning of the 25th, as a freight train was running up the connecting track between the Wilmington & Northern and the Pennsylvania Railroad at Coatesville, Pa., the track being on a very steep grade, the train broke in two and seven cars rushed back down grade and were thrown from the track at the junction with the main line and wrecked, three of them being thrown down a bank into the Brandywine.

#### ACCIDENTAL OBSTRUCTION.

On the morning of the 18th a freight train on the Chicago, Burlington & Quincy road struck a hand-car which had been left standing on the track by some section men near Falkner, Ill. The engine was thrown from the track and ran along the ties upon a small bridge, when it upset over the bridge, dragging two cars after it. The fireman was killed, the engineer injured so that he died in a few hours and a brakeman less severely hurt.

On the morning of the 20th a construction train on the New York City & Northern road, while running backwards near Kingsbridge, N. Y., struck a tie which had fallen on the track, and two cars were thrown into the ditch. An Italian laborer was killed and three others hurt; all of them jumped, and were caught under the cars.

On the morning of the 28th a passenger train on the Lehigh Valley road struck a team heavily loaded with stone at a road crossing near Allentown, Pa. The locomotive was thrown from the track and badly wrecked. The driver of the team was killed.

On the morning of the 30th three cars of a freight train on

the New York, Lake Erie & Western road were thrown from the track near Turners, N. Y., by a broken brake-beam, which had dropped down upon the rails. A tramp, who was stealing a ride, was killed, and another one badly hurt.

#### LAND-SLIDE.

On the morning of the 11th a coal train on the New York, Susquehanna & Western road ran into a land-slide near Bell's Bridge, N. J., and the engine and 30 cars were thrown from the track and piled up in a bad wreck. The engineer was caught under the wreck and crushed to death, and the fireman was badly hurt.

#### MISPLACED SWITCH.

On the morning of the 9th the engine and three cars of a freight train on the New York, Lake Erie & Western were thrown from the track in Newburgh, N. Y., by a misplaced switch. The engine upset into the ditch and was much damaged.

On the morning of the 11th the engine of a passenger train on the Central Railroad of Georgia was thrown from the track in Savannah, Ga., by a misplaced switch.

On the afternoon of the 14th a passenger train on the Chicago & Northwestern road was thrown from the track at Desplaines, Ill., by a misplaced switch.

On the morning of the 23d a passenger train on the West Jersey Railroad was thrown from the track near Cape May, N. J., by a misplaced switch. The engine ran some distance on the ties and then upset. The fireman was caught under the engine and instantly killed. The engineer was thrown some 30 feet and badly hurt. One passenger was slightly hurt in the forward car.

On the morning of the 28th a passenger train on the Philadelphia & Reading road was thrown from the track by a misplaced switch near Parsons, Pa. The engine upset down a bank and a fireman was badly hurt.

On the morning of the 30th a freight train on the New York, Lake Erie & Western road was thrown from the track at Greycourt, N. Y., by a misplaced switch.

#### FLYING SWITCH.

On the morning of the 30th the engine of a passenger train on the New York, Lake Erie & Western road jumped the track in the yard in Jersey City, N. J., while making a flying switch.

#### MALICIOUS.

Very early on the morning of the 5th a passenger train on the Chicago, Burlington & Quincy road was thrown from the track near Wymore, Neb., by a switch which had been purposely misplaced. The engine and baggage car upset and the baggage car was badly damaged.

On the evening of the 10th a passenger train on the Texas & Pacific road struck a lot of ties which had been piled up on the track near Mansfield, Mich. The engine was thrown from the track.

On the night of the 17th, as a freight train on the New York, Philadelphia & Norfolk road was passing over the road in Guilford, Accomac County, Va., it ran off the track, wrecking the engine and two cars and injuring the engineer and two brakemen. It was discovered upon examination that some malicious persons had taken up several rails from the road. The new road runs through the Eastern Shore of Virginia, which has always been a very remote and isolated region. It seems to be pretty well proved that the rails were taken up by some adjacent farmers who had had cattle and hogs killed by the cars.

On the night of the 24th a special passenger train on the Central Railroad of Georgia was thrown from the track near Albany, Ga., by some ties which had been piled up on the road. But little damage was done.

#### UNEXPLAINED.

On the night of the 1st several cars of a freight train on the St. Louis, Iron Mountain & Southern road ran off the track near Williamsville, Mo., and the engineer was hurt.

On the night of the 2d two cars of a coal train on the Kentucky & South Atlantic road jumped the track near Spencer, Ky., and were wrecked.

On the morning of the 12th a freight train on the Delaware, Lackawanna & Western road ran off the track on a trestle in North Buffalo, N. Y. The engine and several cars fell to the ground below and were badly wrecked. The fireman was killed.

About noon on the 12th a car of a freight train on the New York, Lake Erie & Western road jumped the track near Cuba, N. Y., blocking the road about three hours.

On the evening of the 13th a shifting engine on the New York, West Shore & Buffalo road ran off the track in the yard at New Durham, N. J., and upset down a bank. The engine was running at very high speed and was badly wrecked.

On the morning of the 14th the engine of a passenger train on the Michigan & Ohio road ran off the track near Marshall, Mich., and upset. One passenger car also left the track, but was not much damaged. The engineer, fireman and conductor were hurt.

On the night of the 14th the engine and one car of a passenger train on the Louisville & Nashville road were thrown from the track near Zion, Ky. The engine upset, and the engineer and fireman were both very seriously hurt.

On the afternoon of the 15th sixteen cars of a gravel train on the Philadelphia & Reading road were thrown from the track near Cold Spring, Pa., and eight of them ran down a high embankment and were wrecked.

On the evening of the 18th two cars of a freight train on the New York Central & Hudson River Railroad ran off the track at Brighton, N. Y., and one of them upset.

Very early on the morning of the 19th several cars of a freight train on the Indiana, Bloomington & Western road ran off the track near Montezuma, Ind., blocking the road several hours.

On the morning of the 21st as a freight train on the Philadelphia & Reading road was crossing the bridge over the canal in Harrisburg, Pa., a car jumped the track and struck against one of the bridge trusses knocking it down. The bridge and seven loaded cars went down into the canal.

On the morning of the 23d a passenger train on the New York & New England road was thrown from the track near Quinnebaug, Mass., and two cars upset down a high bank. Two trainmen and 28 passengers were injured, most of them slightly.

On the morning of the 27th several cars of a freight train on the New York, Chicago & St. Louis road were thrown from the track near Hamburg, N. Y., and upset. Two cars were wrecked and some cattle killed.

On the morning of the 27th several cars of a freight train on the Cincinnati, Indianapolis, St. Louis & Chicago road were thrown from the track near Greensburg, Ind., blocking the road three hours.

On the night of the 27th a freight train on the Wabash, St. Louis & Pacific road was thrown from the track at Harvey, Ill. The engine and 21 cars went into the ditch, killing the engineer and a brakeman.

Near midnight on the 28th the engine and 14 cars of a freight train on the Cleveland, Lorain & Wheeling road ran off the track near Stillwater, O., and were piled up in a bad wreck. The engineer and a fireman were killed, the conductor and a brakeman hurt.

On the morning of the 29th three cars of a freight train



on the New York Central & Hudson River road were thrown from the track near Corfu, N. Y., blocking the tracks for some time.

## OTHER ACCIDENTS.

## BOILER EXPLOSIONS.

On the morning of the 11th the engine of a passenger train on the Rome, Watertown & Ogdensburg road exploded its boiler when near Richland, N. Y. The forward part of the engine was badly wrecked. The force of the explosion was entirely forward. The train was not damaged, the engineer escaped altogether and the fireman was but slightly hurt.

On the evening of the 15th, the engine of a freight train on the Grand Rapids & Indiana road exploded its boiler when near Decatur, Ind. The engine was wrecked by the explosion; the engineer, fireman and the brakeman who were in the cab were fatally hurt. Several cars ran upon the locomotive and were also wrecked. The wreck caught fire and was completely destroyed. The remains of two tramps were found in the wreck. It is not known whether they were killed at once, or whether they were caught fast and burned to death. Two other tramps, who were stealing a ride, were injured by pieces of the boiler.

On the night of the 15th a locomotive on the Boston, Hoosac Tunnel & Western road exploded its boiler just as it backed into the roundhouse, at Mechanicsville, N. Y. The engine was completely wrecked, and a large piece of the shell of the boiler was blown through the roof of the roundhouse, while the rear end of the fire-box was driven through the wall of the roundhouse, and into some cars on an adjoining siding. The whole roundhouse was badly shattered, and five locomotives standing in it were much damaged by the falling walls. The engineer, who was standing near the engine, was thrown against the brick wall and badly hurt.

On the morning of the 25th, the locomotive of a freight train on the Chesapeake & Ohio road exploded its boiler when near Clifton Forge, Va. The engine was completely wrecked. The engineer, fireman and three brakemen were killed.

## BROKEN CONNECTING ROD.

On the morning of the 19th the engine of a freight train on the Rome, Watertown & Ogdensburg road broke a connecting rod when near Rome, N. Y. The loose end tore out one side of the cab, and struck and killed the fireman.

On the night of the 19th the engine of a passenger train on the Cincinnati, Hamilton & Dayton road broke a coupling rod when near Indianapolis, Ind., and the loose end of the rod tore out one side of the cab, doing considerable damage.

## CAR BURNED WHILE RUNNING.

On the morning of the 19th a car loaded with oil in barrels in a freight train on the New Jersey Central Railroad caught fire near Bloomsbury, N. J., and was entirely destroyed. The other cars of the train were saved. The oil ran out on the tracks, destroying them for some distance, the ties being burned up and the rails twisted out of shape.

## SUMMARY.

This is a total of 89 accidents, in which 38 persons were killed and 112 hurt. As compared with August, 1882, there was a decrease of 55 accidents, of 4 killed and of 24 injured. A fuller statement of the totals and averages will be found on another page.

The eight months of the current year to the end of August show a total of 785 accidents, 258 killed and 1,177 injured, being a monthly average of 98 accidents, 32 killed and 147 hurt. This average is in all respects above the totals for the month of July.

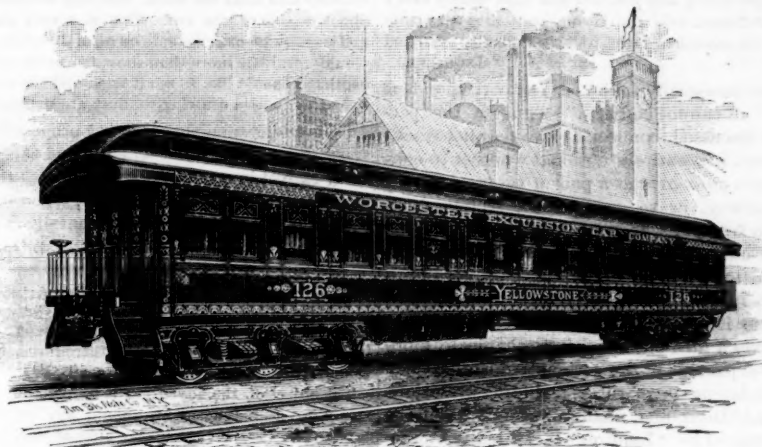
## The Excursion Car "Yellowstone."

The accompanying illustrations represent a form of car which has been introduced by the Worcester Excursion Car Co., of Worcester, Mass. The company owns several cars fitted up with as many home comforts as can be reasonably

as the Miller & Janney combination platforms, entirely inclosed by railings and gates. Entering at the front of the car are two doors leading into an apartment finished in oak, richly carved and provided with low plate-glass windows for observation. It contains a sliding partition, which runs back into a pocket out of sight during the day, and at night when drawn out makes a private sleeping compartment, with a narrow passageway leading from the front platform-

the same luxurious style as that for ladies, with the addition of a private refrigerator and wine-locker. From the hallway also open various lockers for the use of the porter and for the storage of the silver.

The pantry is finished in mahogany and ash, and contains refrigerator, china closets, racks and every other convenience. It has also two folding beds for the use of servants, with the usual lockers for storage.



THE WORCESTER EXCURSION CAR "YELLOWSTONE."

A door opens into the passageway through the sliding partition. The apartment contains an upper berth of the Wagner pattern, with a sofa-bed beneath. A bath-tub is placed beneath the sofa-bed for the use of the occupants. The ceiling of this room, as well as of the rest of the car, is of bird's-eye maple, richly ornamented with hand painting, the deck lights being ornamented with figures of birds and twigs. The floor of the entire car is covered with a Wilton carpet, the prevailing color being sage. All the windows are supplied with spring-roller curtains of figured gold cloth with leather border. The metal trimmings are generally of bronze throughout the car.

The second apartment to the rear is the ladies' toilet-room, finished in mahogany and conveniently furnished. The washstand is of Tennessee marble, and the toilet racks, towel rollers and all the metal trimmings of the water apparatus are nickel-plated. It also contains a large French-plate mirror, linen lockers, draws, etc., and communicates not only with the apartment in front, but also with the passageway and the private stateroom in the rear. The latter, as well as all the balance of the car, except the kitchen and the pantry, is finished in mahogany, elaborately carved. It contains a Hale & Kilbourn patent mahogany combination of bedstead, book case and secretary. It also has a Tennessee marble-top washstand with plate mirror, nickel-plated toilet racks, pump, etc., with the usual supply of lockers and drawers. In addition to the two outside windows, two others open into the passageway, affording ample light and ventilation.

Adjoining it is the kitchen, which is the last apartment. It is finished in ash, and contains a Duparquet & Huot range, with hot and cold-water tanks, water-pumps, closets, tables and all the necessary culinary utensils. The rear platform is 4 ft. wide, and is surrounded by a canvas curtain for stormy weather. Two coal-bunkers are placed thereon.

An electric indicator in the pantry is connected with all portions of the car, so that the attendants may be summoned at any hour of the day or night. The front door-bell is separate, and rings in the rear hall.

## Contributions.

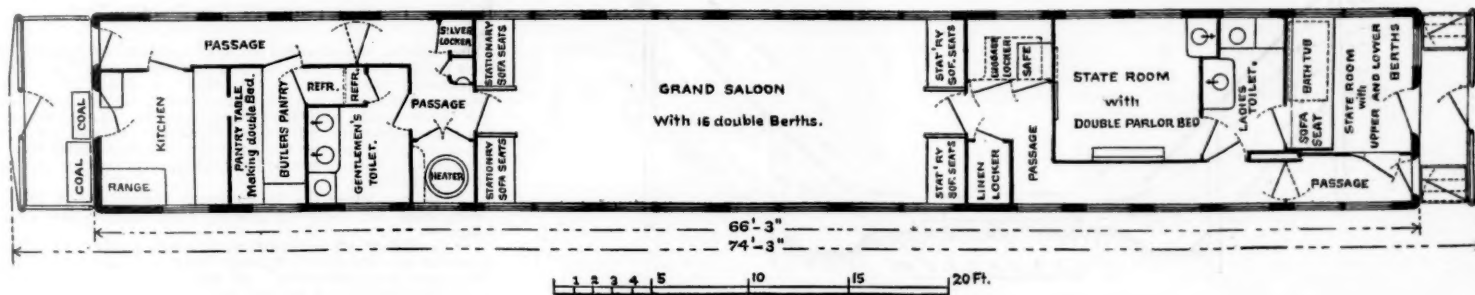
## Locating a Crossing with Reversed Curve Between Parallel Tracks.

EAST INDIA, Aug. 15, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In your issue of November last, Mr. J. A. Anderson, in reply to my query, says, that with two lines, 20 ft. apart, gauge 5 ft. 6 in., crossings 1 in 10, the distance will be 167 ft. to the reversing point; but I do not clearly understand from what point the 167 ft. is to be measured, neither is this an answer to my question. I asked the distance between crossings, *curve reversing midway* between lines, and not a *straight line* from crossing to crossing as given in the formulae by Messrs. Latimer, Bell and others.

Does Mr. Anderson mean that the total length of the connection from nose to nose of points will be 167 ft.  $\times 2 =$



THE WORCESTER EXCURSION CAR "YELLOWSTONE."

expected on wheels, and lets the cars at a certain rate per day, varying from \$25 to \$35. These rates cover use of car and full equipment, with services of porter, cook and waiter. The lessee is expected to make his own arrangements for transportation with the railroad companies, to furnish all consumable supplies, to laundry the car linen used, and to provide board for attendants.

These cars have been used by many theatrical and operatic stars while "starring in the provinces," and by hunting and fishing parties, who journeying into the remote forests can thus carry their own hotel with them, or rather let the hotel carry them.

The illustrations represent the latest of these cars, the "Yellowstone," recently built by the Jackson & Sharp Co., of Wilmington, Del.

The exterior of the body is painted a dark green, and is elaborately ornamented in gold leaf. The name and number of the car are emblazoned in gilt on the sides, while that of the company is inscribed in gilt, shaded with green, on the letter board. The car is carried by ordinary six-wheel trucks with Washburne's steel wheels, and Master Car-Builders' Standard axles. Beneath the body are capacious refrigerators and lockers for the storage of meats, provisions, groceries, small baggage, etc., with flag pole, ladders, hangers for tent poles and other outside conveniences.

The Westinghouse automatic air brakes are used as well

In the hallway is a nickel-plated umbrella rack, a magnesocalcite safe with combination lock and individual locked drawers for the storage of valuables. A baggage-room for small parcels and a closet for holding tables and linen, with storage rack overhead, also adjoin the hallway.

Passing through the rear one enters the grand saloon with its eight sections of berths. The upper is of the Wagner pattern, the panels being handsomely carved and ornamented with marqueterie work of pearls, brass and colors. The heads of the berths, as well as the bulkheads, panels and doors, are richly carved and ornamented with bronze and metal plaques. The saloon contains four beveled plate mirrors, and during the day forms a drawing or dining room, furnished with mahogany tables, mahogany chairs upholstered in leather, and easy chairs and sofas covered with Florentine plush. Two fine lamps of four burners each hang from the ceiling. The lower berths are of the movable Paige patent and have nickel-plated frames, with canvas bed bottoms. The centre panel of the ceiling of the saloon is ornamented with an oil painting of the grand falls of the Yellowstone River in the park.

On the left of the rear hallway is a Searles patent water heater, by which the entire car is heated by water circulating through bronzed pipes. In the same compartment is a box of hand grenades for use in case of fire.

The next apartment is the men's toilet-room, furnished in

334 ft.? If so, the distance between crossings will be 114 ft., I suppose.

Again, with lines 6 ft. apart, crossings and gauge as before, width of rail head  $2\frac{1}{4}$  in., I meant 6 ft. from outside to outside of rails, or 6 ft. 5 in. from working surface to working surface, or "inside to inside," of rails. My method of stating the case may have led Mr. Anderson astray, as I note that he leaves the width of rail-head out of his calculations. The answer given, viz.: 7 ft. 1 in. from nose of one crossing to a point opposite the nose of the other, is not correct theoretically or practically.

Mr. Latimer's rule gives 9 ft. 2 in. and I think this is nearly correct, as with nose of crossing =  $\frac{1}{2}$  in., from actual nose to actual nose (not theoretical point) the distances most used are 8 ft. 2 in. to 8 ft. 4 in.

Mr. Jones, of Madras, gives the following formula:

$$\sqrt{(2aDg)^2 - (2aD - (2g + y)^2)} = RO$$

$y$  = distance from inside to inside of rails.

$g$  = gauge.

$aD$  = radius of turnout curve.

$RO$  = total length of the connection, or from nose to nose of split switches.

Will some of your readers test this and give me their opinion?

Mr. Searles, in his "Field Engineering," page 173, § 196, gives a rule for cross-overs, with curve reversing midway,



but like many others, it is a sealed book to any one unacquainted with trigonometry. Will some one give me the result for the case stated in the first part of my letter by Mr. Searles' rule?

It seems strange that while there are standards for nearly everything in use on a railway, the permanent way should have so few fixed rules. Take twenty engineers, roadmasters or supervisors, and you will find that nearly every one has a different rule for laying turnouts, elevating curves, etc. All cannot be right, and the difficulty is to find out who is.

INQUIRER.

[It does not necessarily follow, as our correspondent states, that "all cannot be right." Thus in the particular case discussed, connecting two parallel tracks by a cross-over, it is entirely optional whether to consider the entire cross-over as a pair of reversed curves reversing midway, or to consider the section from frog-point to frog-point as a tangent connecting the two turn-out curves; yet it makes a considerable difference in the total length. The latter is in ordinary practice the rule invariably preferred; in part, perhaps, because it simplifies the work, but mainly because it gives a turn-out which is mechanically more perfect for the passage of the locomotive, and greatly simplifies the laying out of yards, including provisions for future additions and changes. Therefore, the question advanced by "Inquirer" is not really a practical one as respects a general solution, since the cases where the method needs to be applied in practice are exceptional.—EDITOR RAILROAD GAZETTE.]

#### The United States Automatic Car Coupler.

BOSTON, Sept. 29, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In your description of the United States Coupler, on page 693, you say "it requires a somewhat longer link than usual." You have been misinformed. It does not require a longer link than usual. It takes the standard link, and in fact will take a link of 9 $\frac{1}{4}$  in.

A. R. TINKHAM.

#### Clearing Cuttings of Snow.

MINNESOTA, Sept. 16, 1884.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The time has arrived when superintendents and roadmasters in the Northwest are thinking about snow-plows, and the winter pastime of "bucking" snow therewith. The last issue of your paper contains illustrations and description of a machine for clearing out cuts filled with snow. One very important feature in the experience of this section has been overlooked in this machine. It is made to deliver the snow at one side only. With the knives revolving in one direction and the shovels in another, the snow will be ground into powder, and to deliver that fine snow in the face of the wind on the prairies of the Northwest is just about as possible as to drive loose feathers in a direction

this was that the granary was an obstruction to the wind, and that the current of air was compelled to pass around and under the building in a compressed form and with increased velocity, clearing away the snow. He further suggested that a shed-roof of boards so placed as to catch, say four feet of the current of air above the cut and carry it down to within two feet of the track, would double the velocity and clear the track, carrying the snow out over the opposite side of the cut. This is a very plausible theory and worthy of experiments on a small scale. Certainly it would cost little more than snow fences on cuts of moderate depth. I should like to see it tried and the results reported. I send herewith a drawing to illustrate the suggestion. G.

[We understand that it is not proposed to throw the snow against the wind when using the rotary steam snow shovel in question, but to adjust the hood so that it throws the snow up vertically, when it is caught by the wind and whirled off horizontally far above and clear of the track.—EDITOR RAILROAD GAZETTE.]

#### Burgermeister's Safety Boiler Attachments.

The accompanying illustrations represent a form of making boiler attachments recently introduced by the Safety Boiler Attachment Co., of Pittsburgh, Pa.

The object of the invention is to prevent the escape of steam in case of accident, should any of the fittings be broken off. The inventor also aims at rendering it possible to remove the gauge cock, whistle, etc., while pressure is in the boiler. The invention has been tested on the Baltimore & Ohio and on one or two other railroads, and we understand that the results have proved very satisfactory. The illustrations represent the invention as applied to locomotive boiler fittings and are so clear as to require no further explanation.

Any additional information may be obtained by addressing Mr. C. L. Burgermeister, Box 709, Pittsburgh, Pa.

#### Locomotive Tires.

The following is an abstract of a discussion that took place on this subject at a meeting of the Western Railroad Club, held at Chicago on Sept. 17:

Mr. STEVENS—The subject had been chosen because it is both simple and important. Wear of tires begins as soon as the locomotive leaves the shop, and whatever tends to decrease wear decreases cost. A guarantee should be required of manufacturers of steel tires. As a result of requiring guarantees of cast-iron car wheels the average mileage has increased 25 per cent. A similar course would probably increase the mileage of steel tires.

Mr. B. K. VERBRYCK (Chicago, Rock Island & Pacific)—While the subject has been selected for the master mechanics it was equally interesting to the master car-builders. They now put in many steel-tired wheels.

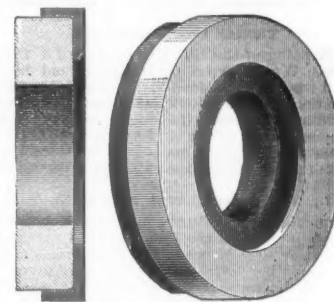
Mr. PRESCOTT—The average mileage of car wheels had been increased by putting in better iron—less scrap and more charcoal iron. Tires must be improved in a similar way, by using better steel. There is a great difference in the machines by which tires are put on, and this difference may affect the wear of the tire. The way in which locomotive drivers are counterbalanced makes quite a difference. The

records and the question of how measurements are to be taken is very important. As to hardness there is certainly a difference between Krupp and American tires. Some Western roads, at least, will pay more for foreign than for American tires. We would rather pay \$50 for good steel rails than \$30 for poor ones, and it is or should be so with tires. The foreign makers have the advantage because they make good tires—better than Americans. The shape of tires has an important influence on the wear. A double-flanged tire is destructive to rails and locomotives. To avoid double flanging our road tapers the tread 1 in 30 for 2 in. from the roof of the flange. The outer 2 in. of the tread is then tapered steeply, 1 in 8, or  $\frac{1}{2}$  in. on the diameter.

It was then decided, after some discussion, that the members should collect some data as to the relative wear of crucible and open-hearth steel tires under different conditions of service, without giving the names of the makers. This data is to be presented at the next meeting of the Club and fully discussed.

#### Iron Clad Fibre Track Washer.

The accompanying illustrations represent a full-size section and perspective view of a new form of vulcanized fibre track washer, manufactured by the Vulcanized Fibre Co., of Wilmington, Del. The peculiarity of the washer lies in the fact that the fibre is surrounded by an iron ring of angle section, thus giving protection from the weather, and guarding the washer against abrasion from the nut, and preventing any tendency to burst or split; while a certain amount of elasticity is given by the fibre.



Iron-Clad Fibre Track Washer

The advantages of this form of washer are thus set forth by the makers:

"1. The washers form non-metallic, permanently elastic cushions under the nuts, not only locking them firmly at any fraction of a turn, but absorbing all vibrations, deaden noise, and compensate for the contraction and expansion of the bolts.

"2. They will not injure the threads of the bolts, as no metal ever touches the thread, and the bolts cannot rattle or chafe against the fish-bar holes.

"3. The yielding nature of the fibre cushion permits the nut when the bolt is not exactly at right angles with the fish-bars, to adjust itself so as to bear in all parts upon the washer, and bring the strain directly through the axis of the bolt, and not at any acute angle thereto."

#### The Massachusetts Car Coupler Test.

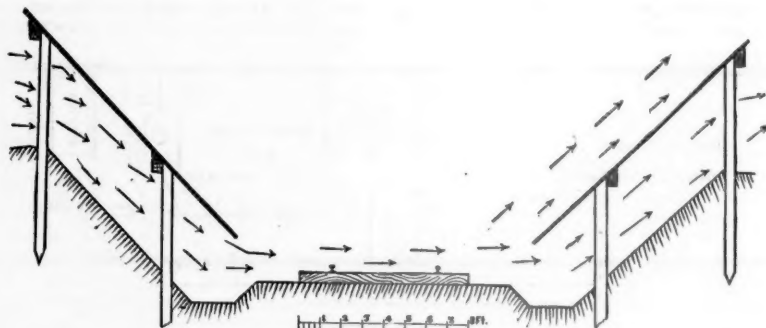
The official examination of car couplers, authorized by act of the last Legislature, was entered upon by the Massachusetts Railroad Commissioners, on Sept. 25. The docket was called in alphabetical order, and the inventors or their agents explained their devices. The Commissioners afterward visited several of the railroad yards in Boston, and inspected the working of such couplers as are attached to cars in use on local roads, or brought to Boston for examination.

Sometime since the Commissioners sent out a letter, embracing the following general regulations of the hearing:—

"Until Sept. 25 no testimony or recommendations will be listened to. The Board, having directed a public hearing, will have no private ones. At the time fixed, we shall receive such testimony for and against any device as may be furnished, and witness such tests of those devices as shall be offered here, at the expense and under the direction of the parties desiring to exhibit them. It is hardly necessary to add that the Board will not be expected to approve any device upon a mere model, nor even upon an experimental test, unless it is supported by a record of continued use in actual traffic."

The following couplers were entered for competition. About 173 in all were brought before the Commissioners, but many are not yet in actual use, and could therefore not be seen in operation:

Charles F. Adams, West Gardner, Mass.; Ames Automatic Car Coupling Co., 29 Oliver street, Boston; Adams & Filt-housen's Self-Acting Coupler, Albany, N. Y.; Barnes Automatic Coupler, Baldwinville, N. Y.; Best Car Coupler Co., T. B. Buchanan, Secretary, Denver, Col.; Bronen Automatic Coupler, Louisville, Ky.; Burrell Coupler, Camden, N. J.; S. A. Borough, Wilderville, Oregon; G. F. Belling, Manor Park, Essex, Eng.; J. C. Bryan, Holly Springs, Ark.; Brooks Automatic Coupler, Barresville, Pa.; Bagley's Automatic Coupler, Indianapolis, Ind.; Thos. F. Byron, Byron's Self-Acting Coupler, Lowell, Mass.; T. B. Buchanan, Denver, Col.; J. K. Bywaters, Paris, Tex.; T. A. Brocklebank, London, Eng.; Peter Campbell (model and letter), Carrollton, Pa.; J. W. Cochrane, Midland, Mich.; James W. Cole, Westfield, Mass.; Cannon-ball Coupler, William Davis, Abilene, Kan.; F. M. Campbell, St. Louis, Mo.; Conway-Ball Coupler (car and model), J. W. Krepps, New York; Charles K. Cordrey, Bellefontaine, O.; E. K. Carnes, Butler, Mo.; Compton & Loise, Williams, Cal.; J. W. Davis, Covington, Tenn.; Davis & Barnes, Abilene, Kan.; Charles Devlin, Pembroke, Ont.; Collard A. Drake, London, Eng.; C. W. Dickey, Columbus, O.; Davidson's Coupler (model and cars), Boston; Patrick Donnelly, Grounds & Gipsam's Patent Coupler, Hope, Ark.; Excelsior Life Saving Coupler, General Fitz John Porter, New York; Eureka Coupler, Grand Rapids, Mich.; J. W. Eckman, Greenfield, Ill.; Fort Wayne Coupler, Fort Wayne, Ind.; George A. Furguson, Lake Village, N. H.; Fish's Universal Automatic Car Coupling, Wabash,



CLEARING SNOW FROM CUTS.

contrary to the contortions of a festive cyclone. A machine on the principle of this one must be capable of delivering the snow in the direction with the wind. Here the snow becomes almost as dry as dust in the highway in August, and much lighter. Even if the snow was delivered at the windward side, it would in a few minutes be back in the cut. I have seen cuts fill up in twenty minutes after the passage of the ordinary snow plow. Although the drifts may be hard enough to walk on, whenever the wind blows the snow is on the move, and the facility with which it flows over ridges and up and down slopes is surprising. It seems to penetrate wherever a prairie fire would. It is the worst foe roadmasters and section-men have to meet, and it baffles the best of them.

None of the snow plows I have seen are built to clean a cut to the right shape, all making a channel with vertical sides. The lower corners fill up rapidly, which would not occur so readily if it could be scooped away somewhat similar to the slopes of the original cut. Of course this would make it necessary to keep an eye out to the windward in building depots, platforms and bridges, but on most roads snow plows, with considerable modification in this direction, could be used.

During a blockade in Southwestern Minnesota last winter, when remedies were naturally under discussion, a friend called my attention to a granary that was set on blocks about two feet from the ground. While the drifts were piled up all around it, we could walk entirely around close to it on the bare ground. He suggested that the cause of

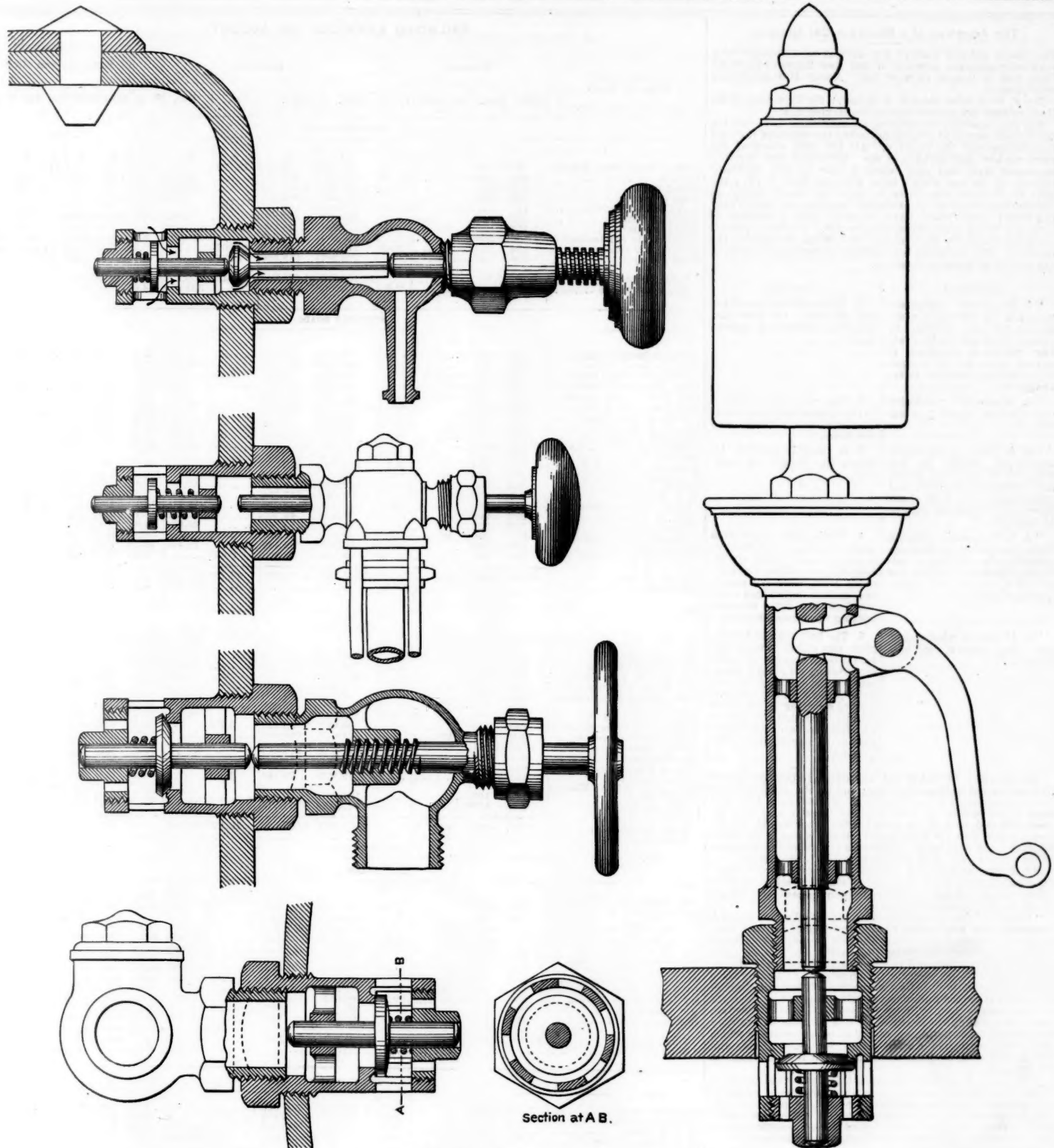
durability of tires was increased by improvements in counterbalancing.

Mr. STEVENS—The question of counterbalancing did not apply to car wheels—they had only to revolve and carry the cars. No doubt much mischief to locomotive drivers is done by defective counterbalancing.

Mr. TOWNSEND (Chicago & Alton)—Our company has from 600 to 800 steel-tired 42-in. wheels, many of which have made little short of 500,000 miles. The 33-in. wheels have not made so much. Steel-tired wheels are perfectly safe, so far as the giving out of wheels is concerned.

Mr. W. FORSYTH (Chicago, Burlington & Quincy)—The most important end to be attained by the club and to be reached through these discussions was to benefit their companies by learning how to get increased service out of material with the least expenditure. In order that a guarantee may work out the desired object we must keep such tire records as will show what service we can reasonably expect of tires. Among the things to be considered are weight, shape, the kind of service and hardness. Shape and service might be combined and considered as one characteristic. The Midvale Steel Co. had offered to furnish tires specially adapted to the service required. The grading proposed by that company he thought was based upon the hardness only. It was doubtful if it had enough experience, as yet, to enable it to grade so as to meet the conditions of service. This, however, is a move in the right direction. There are not more than one or two roads in the country that have a really reliable and accurate tire record. To get at the wear the usual method is to measure the diameter from year to year, and the points from which the measurements are made may be different each time. A more accurate method is to get the circumference, the most accurate method is to get the weight. What we get out of a tire is the difference between its weight when new and when worn divided by the mileage. What is worn off is what we pay for. If we are to demand a guarantee we must keep accurate





BURGERMEISTER'S SAFETY BOILER ATTACHMENTS.

Ind.; G. V. Greer, Wilmington, Del.; Gifford Automatic Freight Car Coupler, J. B. McCormick, New York; Welcome A. Green, Providence, R. I.; L. W. Gates, Middletown, N. Y.; G. Gardner, Woods, O.; Howard's Self-Acting Coupler, Newburyport, Mass.; Howe's (Manley) Coupler, Boston; Herman Haupt, St. Paul, Minn.; Hatfield Coupler, Hathaway, Boston; L. P. Harrison, Paris, Tex.; William S. Huntington, New York; J. E. L. Harbold, Louisville, Ky.; A. B. Holmes, Scranton, Pa.; Hilliard Car Coupling Co.; Charles Schryon, Kansas City, Mo.; Hin Coupler; W. P. Jenness, Grand Rapids, Mich.; T. R. Jackson, Sabina Pass, Tex.; George W. James, Lima Car Coupler, Lima, O.; Janney Coupler, Pittsburgh, Pa.; Wallace King, Baltimore, Md.; Lingar's (D. T.) Coupler, Cairo, Ill.; F. W. Lentz, Louisville, Ky.; John P. Lancaster, Springfield, Mass.; Lehigh County Coupler Co., Allentown, Pa.; J. B. Lowe, Columbus, O.; Marks Automatic Car Coupler Co., Cleveland, O.; Mrs. Susan P. Moulton, Salem, Mass.; O. P. Mossgrove, Steubenville, O.; Marion Steam Shovel Co., Marion, O.; George C. McEwen, Newark, N. J.; James McCarm, Lansing, Mich.; Manlick's Automatic Coupler, M. L. Knight, Beaver Falls, Penn.; Henry Mitchell, Boston; John McMurtry, Lexington, Ky.; J. N. McBosh, Paris, Tex.; Wm. H. Meadows, McMinnville, Tenn.; J. M. McNamee, Clews Coupler, Opelika, Ala.; W. H. Martin, Philadelphia; J. H. Nutting Coupler, Springfield, Mass.; T. B. Nutting, 137 Broadway, New York; Wm. L. Nichols, Austin, Tex.; P. Oswald, Smithburg, Md.; Peter W. Offland, Blissfield, Mich.; Putnam, Hickok & Hickok, Buffalo, N. Y.; S. O. Pickens, Spencer, Ind.; J. H. Pudrey, Franklin, Ind.; Captain J. H. Patterson, U. S. Army, Leavenworth, Kan.; B. Pollock, St. Louis, Mo.; Painesville Coupler Co., Painesville, O.; E. F. Poindexter, Milford, Mass.; Peck's Car Coupler, Columbus, O.; J. H. Quackenbush, East Saginaw, Mich.; W. E. Rippert, Columbus, O.; Robinson Car Coupler,

A. C. Woodman, Bellefontaine, O.; David M. Reynolds, Watkins Glen, N. Y.; J. U. Shaffer, Louisville, Ky.; A. L. Sanders, Falcon, Tenn.; Spencer Automatic Coupler, Richmond, Mo.; Swan Coupler, James Schofield, Marshall, Tex.; E. B. Sankey, Salem, Mo.; Samuel A. Swann, New York; C. B. Strong, Tilton, N. H.; W. D. Smith, 80 Broad street, Boston; Todd's Coupler, Williams Page & Co., Boston; William S. Thayer, Oswego, N. Y.; Thomas Turner, Hastings, England; Walter Turnbull, New Orleans, La.; J. R. Titus (Titus & Crossinger's patent), Huntington, W. Va.; Turner's Patent Coupler, Baltimore, Md.; United States Car Coupler Co., 4 Sears Building, Boston; Union Car Coupler, Boston; Universal Automatic Coupler, Raleigh, N. C.; Vance Automatic Car Coupler, Cincinnati, O.; W. W. Watkins, Bellevue, Ia.; George W. White, Bellemina, Ala.; John Ward, Coudersport, Penn.; White Safety Coupler, Oneonta, N. Y.; A. C. Woodman, Robinson Car Coupler, Bellefontaine, O.; B. F. Whitney, Eldon, Ia.; Thomas Woods, London, England; Williams Coupler, Brattleboro, Vt.; William Zashbringer, New Orleans, La.

The following couplers were tested in the various railroad yards near Boston. We subjoin the name of a road on which the coupler is in use. Many couplers in the list are in very extensive use on several roads, while others are in very limited use on one road only:

Ames; Boston & Albany.  
Ames; (of Canada).  
Archer; Delaware & Hudson Canal Co.  
Barnes; Rochester & Pittsburgh.  
Boston; (of Minnesota).  
Brown; Louisville & Nashville.  
Byron; Boston & Lowell.  
Conway-Ball; Grand Trunk.  
Coombs; Delaware, Lackawanna & Western.  
Cowell; Providence & Worcester.

Gifford; New York, Lake Erie & Western.  
Davidson; Intercolonial.  
Hine; Chicago, Rock Island & Pacific.  
Hitchcock; Connecticut River.  
Hoag; Boston & Albany.  
Hubbel; St. Johnsbury & Lake Champlain.  
Janney; Pennsylvania.  
Mark; Flint & Pere Marquette.  
Moulton; Eastern.  
Peck; Cleveland, Lorain & Wheeling.  
Prescott; Central Vermont.  
Robinson; (Ohio).  
Smithe; (N. J.).  
Turner; Baltimore & Ohio.  
Union; Eastern.  
United States; Concord Railroad.  
Williams; (Brattleboro, Vt.).  
Wilson-Walker.

Many of the couplers failed to couple when tried before the Commissioners. The fault, of course, invariably lay not in the coupler under trial, but in the other car, a bent link, too violent or too gentle a bump, the link being held too high, the other bar being too low, and various other good reasons well known to railroad men. The failures were of course exceptional in each case, and had never, or hardly ever occurred in ordinary working.

Several models were exhibited of couplers very recently patented, which have not yet received any practical test. It seems probable that the various inventors will derive useful lessons from the comparative tests of their respective couplers. Many will, it is to be hoped, recognize the grave practical defects in their inventions and quit the field. Others may possibly be able to combine the good points present in the devices of others, while yet another class may be able to still further improve their own couplers.



### RAILROAD EARNINGS IN AUGUST.

many better couplers. We want a coupler that will stay as well as any other part of the car. We want a coupler automatic in its action; not a coupler that will let go and part the train as some of them will do, but a coupler that will couple automatically, and remain coupled until it is uncoupled.

Mr. KIRBY: The cost of links and pins on our line the



## RAILROAD EARNINGS, EIGHT MONTHS ENDING AUGUST 31.

| NAME OF ROAD.         | MILEAGE. |       |      |      |       | EARNINGS.  |            |           |      |       | EARNINGS PER MILE. |          |        |      |       |
|-----------------------|----------|-------|------|------|-------|------------|------------|-----------|------|-------|--------------------|----------|--------|------|-------|
|                       | 1884.    | 1883. | Inc. | Dec. | P. c. | 1884.      | 1883.      | Inc.      | Dec. | P. c. | 1884.              | 1883.    | Inc.   | Dec. | P. c. |
| <b>EASTERN ROADS.</b> |          |       |      |      |       |            |            |           |      |       |                    |          |        |      |       |
| Bos. & Hous. T. & W.  | 87       | 87    |      |      |       | \$ 281,458 | \$ 214,063 | \$ 67,395 |      |       | \$ 3,235           | \$ 2,460 | \$ 775 |      | 31.5  |
| Eastern.....          | 284      | 284   |      |      |       | 2,359,865  | 2,400,736  | 40,871    |      |       | 8,309              | 8,453    | 144    |      | 1.7   |
| Grand Trunk.....      | 2,319    | 2,321 |      | 2    | 0.1   | 10,979,284 | 12,281,126 | 1,301,842 |      |       | 4,734              | 5,291    | 557    |      | 10.5  |
| Long Island.....      | 354      | 354   |      |      |       | 1,881,853  | 1,899,393  | 15,520    |      |       | 5,310              | 5,372    | 62     |      | 0.8   |
| N. Y. Susq. & W.      | 147      | 147   |      |      |       | 654,773    | 658,321    | 3,548     |      |       | 4,454              | 4,478    | 24     |      | 0.5   |
| Northern Central..... | 322      | 322   |      |      |       | 3,608,198  | 4,006,410  | 398,212   |      |       | 11,206             | 12,442   | 1,236  |      | 9.9   |
| Pennsylvania.....     | 2,117    | 2,051 | 66   |      | 3.2   | 31,940,231 | 33,258,912 | 1,318,681 |      |       | 15,087             | 16,216   | 1,129  |      | 7.0   |
| Phila. & Reading..... | 1,510    | 1,210 | 300  |      | 28.9  | 20,285,468 | 17,482,989 | 2,802,479 |      |       | 13,003             | 14,449   | 1,446  |      | 10.0  |
| Rochester & Pitts.    | 294      | 186   | 108  |      | 58.1  | 739,245    | 340,303    | 398,942   |      |       | 2,514              | 1,830    | 684    |      | 37.4  |
| West Jersey.....      | 188      | 185   | 3    |      | 1.6   | 929,409    | 871,992    | 57,417    |      |       | 4,944              | 4,710    | 234    |      | 4.9   |
| Total 10 roads.....   | 7,672    | 7,147 | 525  |      | 7.3   | 73,659,784 | 73,381,185 | 2,778,599 |      |       | 9,601              | 10,267   | 666    |      | 6.5   |
| Total inc. or dec.    |          |       | 525  |      | 7.3   |            |            | 278,599   |      |       |                    |          | 666    |      | 6.5   |

|                        |       |       |     |  |       |            |            |           |  |  |          |          |        |  |      |
|------------------------|-------|-------|-----|--|-------|------------|------------|-----------|--|--|----------|----------|--------|--|------|
| <b>SOUTHERN ROADS.</b> |       |       |     |  |       |            |            |           |  |  |          |          |        |  |      |
| Ala. Gt. Southern..... | 290   | 293   |     |  |       | \$ 670,814 | \$ 645,047 | \$ 25,767 |  |  | \$ 2,344 | \$ 2,224 | \$ 120 |  | 5.4  |
| Ches. & Ohio.....      | 517   | 517   |     |  |       | 2,383,029  | 2,513,813  | 130,784   |  |  | 4,611    | 4,892    | 281    |  | 5.2  |
| Eliz., Lex. & B. S.    | 130   | 130   |     |  |       | 481,200    | 455,893    | 25,307    |  |  | 3,702    | 3,507    | 195    |  | 5.5  |
| Ches., O. & S. W.      | 309   | 309   |     |  |       | 842,843    | 784,241    | 58,602    |  |  | 2,732    | 2,539    | 193    |  | 7.5  |
| Cin., N. O. & Tex. P.  | 333   | 336   |     |  |       | 1,662,341  | 1,626,953  | 35,378    |  |  | 4,947    | 4,842    | 105    |  | 2.2  |
| East Tenn., Va. & Ga.  | 1,098 | 1,074 | 24  |  | 2.2   | 2,434,909  | 2,509,638  | 74,729    |  |  | 2,218    | 2,337    | 119    |  | 5.0  |
| Memphis & Char.        | 292   | 292   |     |  |       | 872,015    | 755,944    | 116,071   |  |  | 2,986    | 2,590    | 396    |  | 15.4 |
| Fra. Ry. & Nav. Co.    | 485   | 477   | 8   |  | 1.7   | 946,544    | 879,588    | 66,956    |  |  | 1,933    | 1,815    | 118    |  | 6.5  |
| Kentucky Central.....  | 229   | 229   |     |  |       | 596,738    | 538,725    | 58,013    |  |  | 2,575    | 2,403    | 172    |  | 7.2  |
| Louisville & Nash.     | 2,065 | 2,048 | 17  |  | 0.8   | 8,730,400  | 8,751,280  | 11,877    |  |  | 4,232    | 4,273    | 41     |  | 0.9  |
| Mobile & Ohio.....     | 528   | 528   |     |  |       | 1,243,832  | 1,254,104  | 10,262    |  |  | 2,356    | 2,375    | 19     |  | 0.8  |
| Nash., Chat. & St. L.  | 555   | 554   | 1   |  | 0.2   | 1,550,846  | 1,514,116  | 36,730    |  |  | 2,794    | 2,733    | 61     |  | 2.3  |
| N. O. & Nor'east.....  | 195   | 76    | 119 |  | 159.6 | 241,172    | 58,026     | 183,146   |  |  | 1,237    | 764      | 473    |  | 61.9 |
| Norfolk & Western      | 503   | 459   | 44  |  | 9.6   | 1,662,326  | 1,690,334  | 28,008    |  |  | 3,305    | 3,683    | 378    |  | 10.2 |
| Rich. & Danville.....  | 757   | 757   |     |  |       | 2,369,172  | 2,354,682  | 14,490    |  |  | 3,130    | 3,110    | 20     |  | 0.6  |
| Char., Col. & Aug.     | 369   | 339   | 30  |  | 8.2   | 446,848    | 489,350    | 42,502    |  |  | 1,241    | 1,473    | 232    |  | 18.5 |
| Col. & Greenville      | 296   | 296   |     |  |       | 307,614    | 451,073    | 143,459   |  |  | 1,343    | 1,524    | 181    |  | 13.5 |
| Va. Midland.....       | 282   | 332   |     |  |       | 1,013,906  | 1,059,331  | 45,425    |  |  | 3,600    | 3,000    | 600    |  | 16.7 |
| Western N. C.          | 207   | 195   | 12  |  | 6.2   | 275,447    | 221,874    | 53,573    |  |  | 1,331    | 1,138    | 193    |  | 16.9 |
| Shenandoah Valley      | 249   | 249   |     |  |       | 477,279    | 527,364    | 50,085    |  |  | 1,917    | 2,118    | 201    |  | 9.5  |
| Vicks. & Meridian..... | 142   | 142   |     |  |       | 291,055    | 291,383    | 328       |  |  | 2,050    | 2,052    | 2      |  | 0.1  |
| Total 21 roads.....    | 9,955 | 9,730 | 225 |  | 2.3   | 29,248,939 | 29,072,865 | 683,033   |  |  | 2,939    | 2,988    | 49     |  | 1.6  |
| Total inc. or dec.     |       |       | 225 |  | 2.3   |            |            | 176,074   |  |  |          |          | 49     |  | 1.6  |

|                          |       |       |    |  |     |            |              |           |  |  |          |          |        |  |      |
|--------------------------|-------|-------|----|--|-----|------------|--------------|-----------|--|--|----------|----------|--------|--|------|
| <b>CENTRAL GROUP.</b>    |       |       |    |  |     |            |              |           |  |  |          |          |        |  |      |
| Chi. & Eastern Ill.      | 252   | 252   |    |  |     | \$ 973,711 | \$ 1,066,061 | \$ 92,350 |  |  | \$ 3,865 | \$ 4,231 | \$ 365 |  | 8.7  |
| Chi. & West Mich.        | 410   | 400   | 10 |  | 2.5 | 1,010,876  | 1,026,153    | 15,277    |  |  | 2,466    | 2,565    | 99     |  | 3.9  |
| Cin., Ind. St. L. & Chi. | 342   | 342   |    |  |     | 1,537,725  | 1,600,225    | 62,500    |  |  | 4,496    | 4,679    | 183    |  | 3.9  |
| Cin., Wash. & Balt.      | 284   | 284   |    |  |     | 1,104,362  | 1,204,900    | 100,538   |  |  | 3,887    | 4,243    | 356    |  | 8.3  |
| Cleve., Akron & Col.     | 144   | 144   |    |  |     | 314,778    | 345,695      | 30,917    |  |  | 2,186    | 2,401    | 215    |  | 8.9  |
| Det., Lan. & No.         | 258   | 235   | 23 |  | 9.9 | 892,175    | 1,018,658    | 126,483   |  |  | 3,458    | 4,335    | 877    |  | 20.2 |
| Ev. & Terre Haute.       | 146   | 146   |    |  |     | 490,229    | 479,876      | 10,353    |  |  | 3,358    | 3,287    | 71     |  | 2.1  |
| Flint & Pere Marq.       | 362   | 347   | 15 |  | 4.3 | 1,561,215  | 1,655,981    | 94,766    |  |  | 4,313    | 4,772    | 459    |  | 9.6  |
| Illinois Central.....    | 1,526 | 1,501 | 25 |  | 1.7 | 6,321,769  | 6,609,081    | 287,312   |  |  | 4,143    | 4,443    | 300    |  | 6.7  |
| Ohio Central.....        | 212   | 212   |    |  |     | 727,485    | 685,979      | 41,506    |  |  | 3,428    | 3,236    | 192    |  | 6.0  |
| Ohio & Mississippi       | 615   | 615   |    |  |     | 2,623,478  | 2,860,475    | 236,997   |  |  | 4,300    | 4,651    | 351    |  | 8.5  |
| Peoria, Dec. & Ev.       | 254   | 254   |    |  |     | 480,147    | 454,178      | 25,969    |  |  | 1,965    | 1,788    | 177    |  | 9.9  |
| St. L., Alton & T. H.    | 195   | 195   |    |  |     | 865,432    | 933,097      | 67,665    |  |  | 4,438    | 4,785    | 347    |  | 7.2  |
| Main Line.....           | 138   | 127   | 11 |  | 8.8 | 483,062    | 520,622      | 37,560    |  |  | 3,500    | 4,096    | 596    |  | 14.6 |
| Belleville Line.....     | 138   | 127   | 11 |  | 8.8 | 483,062    | 520,622      | 37,560    |  |  | 3,500    | 4,096    | 596    |  | 14.6 |
| Total 14 roads.....      | 5,138 | 5,054 | 84 |  | 1.6 | 19,405,614 | 20,521,071   | 96,828    |  |  | 3,777    | 4,060    | 283    |  | 6.9  |
| Total inc. or dec.       |       |       | 84 |  | 1.6 |            |              | 1,115,457 |  |  |          |          | 283    |  | 6.9  |

|                            |        |        |     |  |      |              |              |           |  |  |          |          |       |  |      |
|----------------------------|--------|--------|-----|--|------|--------------|--------------|-----------|--|--|----------|----------|-------|--|------|
| <b>NORTHWESTERN ROADS.</b> |        |        |     |  |      |              |              |           |  |  |          |          |       |  |      |
| Bur., Ced. Rap. & No.      | 714    | 714    |     |  |      | \$ 1,691,303 | \$ 1,709,368 | \$ 18,065 |  |  | \$ 2,369 | \$ 2,394 | \$ 25 |  | 1.1  |
| Central Iowa.....          | 401    | 359    | 42  |  | 21.9 | 883,010      | 799,127      | 83,900    |  |  | 2,202    | 2,429    | 227   |  | 9.4  |
| Chi. & Alton.....          | 850    | 850    |     |  |      | 5,449,559    | 5,421,639    | 25,920    |  |  | 6,411    | 6,381    | 30    |  | 0.4  |
| Chi., Mil. & St. P.        | 4,709  | 4,524  | 185 |  | 5.4  | 14,204,000   | 14,369,432   | 165,432   |  |  | 3,078    | 3,176    | 98    |  | 6.2  |
| Chi. & N. W.               | 3,842  | 3,582  | 260 |  | 7.3  | 14,532,599   | 15,453,005   | 920,406   |  |  | 3,782    | 4,314    | 532   |  | 12.4 |
| St. P., M. & O.            | 1,290  | 1,170  | 120 |  | 10.3 | 3,580,544    | 3,303,257    | 277,287   |  |  | 2,776    | 2,833    | 57    |  | 1.7  |
| Des Moines & Ft. D.        | 138    | 138    |     |  |      | 214,121      | 198,428      | 15,693    |  |  | 1,532    | 1,438    | 94    |  | 7.9  |
| Green Bay, W. & St. P.     | 220    | 220    |     |  |      | 2,316,338    | 2,475,525    | 158,187   |  |  | 971      | 1,125    | 154   |  | 13.7 |
| Ill. Cent., Iowa lines     | 402    | 402    |     |  |      | 1,042,677    | 1,251,676    | 208,999   |  |  | 2,594    | 3,114    | 520   |  | 16.6 |
| Marquette, H. & O.         | 129    | 100    | 29  |  | 29.0 | 603,685      | 562,926      | 40,759    |  |  | 4,680    | 5,629    | 949   |  | 16.9 |
| Mil., L. S. & W.           | 377    | 323    | 54  |  | 16.7 | 716,098      | 668,419      | 47,679    |  |  | 1,899    | 2,169    | 270   |  | 12.3 |
| Mil. & Northern.....       | 227    | 185    | 42  |  | 22.7 | 334,621      | 307,730      | 26,891    |  |  | 1,474    | 1,663    | 189   |  | 11.4 |
| Wisconsin Central.....     | 440    | 440    |     |  |      | 928,118      | 910,336      | 17,782    |  |  | 2,109    | 2,069    | 40    |  | 1.9  |
| Total 13 roads.....        | 13,800 | 12,977 | 823 |  | 6.3  | 44,393,903   | 45,204,868   | 535,914   |  |  | 3,217    | 3,483    | 266   |  | 7.6  |
| Total inc. or dec.         |        |        | 823 |  | 6.3  |              |              | 810,875   |  |  |          |          | 266   |  | 7.6  |

|                                     |       |       |       |  |      |            |            |           |  |  |       |       |     |  |      |
|-------------------------------------|-------|-------|-------|--|------|------------|------------|-----------|--|--|-------|-------|-----|--|------|
| <b>ROADS NORTHWEST OF ST. PAUL.</b> |       |       |       |  |      |            |            |           |  |  |       |       |     |  |      |
| Canadian Pacific.....               | 2,248 | 1,494 | 754   |  | 50.5 | 3,361,832  | 3,351,226  | 10,606    |  |  | 1,445 | 2,243 | 798 |  | 33.4 |
| Northern Pacific.....               | 2,406 | 1,689 | 717   |  | 45.7 | 7,981,593  | 5,424,907  | 2,556,686 |  |  | 3,237 | 3,212 | 25  |  | 0.8  |
| St. P. & Duluth.....                | 227   | 110   | 117   |  | 8.1  | 736,495    | 792,588    | 56,093    |  |  | 3,244 | 3,774 | 530 |  | 14.3 |
| St. P., Minn. & Man.                | 1,388 | 1,275 | 113   |  | 8.9  | 4,823,950  | 5,154,921  | 330,971   |  |  | 3,475 | 4,043 | 568 |  | 14.1 |
| Total 4 roads.....                  | 6,329 | 4,668 | 1,661 |  | 35.6 | 16,903,870 | 14,723,642 | 2,567,292 |  |  | 2,671 | 3,154 | 483 |  | 15.3 |
| Total inc. or dec.                  |       |       | 1,661 |  | 35.6 |            |            | 2,180,228 |  |  |       |       | 483 |  | 15.3 |

| SOUTHWESTERN ROADS.      |       |       |      |      |      |           |           |           |         |       |       |      |      |      |      |
|--------------------------|-------|-------|------|------|------|-----------|-----------|-----------|---------|-------|-------|------|------|------|------|
| Ft. Worth & Den.         | 110   | 110   | .... | .... | .... | 315,800   | 226,190   | 89,619    | 39.6    | 2,871 | 2,056 | 815  | .... | 39.6 | .... |
| Gulf. Col. & S. F.       | 536   | 512   | 24   | .... | 4.4  | 1,065,707 | 1,200,164 | 134,457   | 11.2    | 1,988 | 2,344 | .... | 350  | 15   | .... |
| Houst. E. & W. Tex.      | 140   | 120   | 20   | .... | 16.7 | 173,554   | 199,941   | 26,382    | 13.2    | 1,240 | 1,666 | .... | 426  | 25   | .... |
| K. C. Ft. S. & Gulf.     | 389   | 389   | .... | .... | .... | 1,525,427 | 1,198,157 | 327,270   | 27.3    | 3,921 | 3,080 | 841  | .... | 27   | .... |
| St. L., Ft. S. & W.      | 163   | 132   | 31   | .... | 23.5 | 307,547   | 140,311   | 167,236   | 119.0   | 1,886 | 1,063 | 823  | .... | 77   | .... |
| St. L. & San Fran.       | 759   | 731   | 28   | .... | 3.8  | 2,919,750 | 2,346,511 | 573,239   | 24.5    | 3,847 | 3,210 | 637  | .... | 19   | .... |
| Vicks., Sh. & Pac.       | 126   | 73    | 53   | .... | 72.7 | 99,440    | 51,016    | 48,424    | 94.9    | 783   | 699   | 90   | .... | 12   | .... |
| Total, 7 roads.....      | 2,223 | 2,067 | 156  | .... | .... | 6,407,925 | 5,392,290 | 1,205,779 | 160,844 | 2,882 | 2,594 | 288  | .... | 288  | .... |
| Total, inc. or dec. .... | ....  | ....  | 156  | .... | 7.5  | ....      | ....      | 1,044,935 | 19.7    | ....  | ....  | 288  | .... | 11   | .... |





Published Every Friday.

## EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

## AUGUST EARNINGS.

Our table of railroad earnings in August, published on another page, has reports from 72 railroads, whose aggregate mileage and earnings and average earnings per mile were:

|                     | 1884.        | 1883.        | Inc. or Dec. | P. c.       |
|---------------------|--------------|--------------|--------------|-------------|
| Miles.....          | 49,353       | 46,532       | +            | 2.821       |
| Earnings.....       | \$29,091,136 | \$31,213,247 | —            | \$2,122,111 |
| Earn. per mile..... | 589          | 670          | —            | 81          |

Thus with an addition of 2,821 miles of road, these railroads had \$2,122,111 less earnings this year, and their decrease in earnings per mile was no less than 12 per cent. Of the 72 roads, no less than 54 had a decrease in total earnings and 55 a decrease in earnings per mile—a much more general decrease than in any other month.

Taking the different groups of roads, we find that the four railroads northwest of St. Paul all had a decrease in total earnings in August, and all a large decrease in earnings per mile. In the aggregate, with an increase of 28 per cent. in mileage, they had a decrease of 4½ per cent. in earnings, the average earnings per mile having decreased from \$448 to \$333, or 25¾ per cent. August is the last month of the crop year for these roads, but last year's crop was good on them. A cessation of construction work probably had more to do with the decrease in earnings on some of them than any change in the crop movement.

The 13 other roads west and northwest of Chicago that report had every one a decrease in total earnings as well as in earnings per mile, their aggregates being:

|                     | 1884.       | 1883.       | Inc. or Dec. | P. c.     |
|---------------------|-------------|-------------|--------------|-----------|
| Miles.....          | 13,870      | 13,096      | +            | 774       |
| Earnings.....       | \$6,021,631 | \$6,650,388 | —            | \$628,757 |
| Earn. per mile..... | 434         | 508         | —            | 74        |

This is wholly unfavorable, and very much so. Eight of the 13 roads had a decrease of more than 10 per cent. in earnings per mile, and on six it was more than 20 per cent. The decrease from \$1,633 to \$850 on the Marquette, Houghton & Ontonagon, whose business is chiefly carrying iron ore, is perhaps not so surprising as the decrease \$668 to \$519 on the Chicago & Northwestern, and from \$414 to \$313 on the Iowa lines of the Illinois Central. The Chicago & Alton, which is the only one of these roads extending southwest from Chicago, had but a small decrease.

The seven roads west and southwest of St. Louis that report may not fairly represent the traffic in that district, as the Gould Southwestern roads, which have much the larger part of the mileage there, do not report. Of the seven that do report five have an increase in total earnings and in earnings per mile. In

the aggregate, with an increase of 7.7 per cent. in mileage, they had an increase of 5.3 per cent. in earnings and their earnings per mile fell from \$395 to \$386. Two Texas roads show large decreases, and the gains of the Fort Scott & Gulf and the St. Louis & San Francisco were less than heretofore, when they were very large.

In the Far West we have besides the Central Pacific a report from the Utah Central. The latter has a trifling gain, the Central Pacific a decrease of 5.7 per cent.

There are 15 roads north of the Ohio River that report, excluding most of the important ones. Only three of them have any increase either in total earnings or earnings per mile, the three thus distinguished being the Cleveland, Akron & Columbus, the Evansville & Terre Haute, and the Peoria, Decatur & Evansville. The largest losses in earnings per mile were 20 per cent. by the West Michigan, 32 by the Connotton Valley, 28½ by the Detroit, Lansing & Northern, 21½ by the Ohio & Mississippi, and 26½ by the Alton & Terre Haute main line.

In the aggregate these 15 roads make the following showing:

|                     | 1884.       | 1883.       | Inc. or Dec. | P. c.     |
|---------------------|-------------|-------------|--------------|-----------|
| Miles.....          | 5,278       | 5,240       | +            | 58        |
| Earnings.....       | \$2,674,486 | \$3,007,645 | —            | \$423,159 |
| Earn. per mile..... | 507         | 591         | —            | 84        |

Here again the decrease in earnings is very large.

Of the 21 Southern roads east of the Mississippi in the table no less than 15 have smaller total earnings and earnings per mile than last year. The gains of the Lexington & Big Sandy and the Memphis & Charleston were large, so were the losses of the East Tennessee (16½ per cent.), the Florida Navigation Co. (21), the Kentucky Central (20½), the Charlotte, Columbia & Augusta (25 per cent.) and Columbia & Greenville (23). The aggregates of these Southern roads were:

|                     | 1884.       | 1883.       | Inc. or Dec. | P. c.     |
|---------------------|-------------|-------------|--------------|-----------|
| Miles.....          | 10,041      | 9,849       | +            | 192       |
| Earnings.....       | \$3,883,380 | \$4,220,472 | —            | \$337,092 |
| Earn. per mile..... | 387         | 429         | —            | 42        |

The decreases are large, but much less than those of the Western railroads.

Of the ten Eastern railroads that report, four have an increase in earnings and in earnings per mile. The changes are in no case very great except a gain of 37 per cent. on the short Hoosac Tunnel & Western, and one of 24½ on the new Rochester & Pittsburgh. The Grand Trunk's loss is 7 per cent. and not noticeably different from what it has been in previous months. The largest loss is 13 per cent., by the Northern Central. In the aggregate the 10 roads had:

|                     | 1884.        | 1883.        | Inc. or Dec. | P. c.     |
|---------------------|--------------|--------------|--------------|-----------|
| Miles.....          | 7,707        | 7,555        | +            | 152       |
| Earnings.....       | \$11,100,968 | \$11,635,347 | —            | \$534,379 |
| Earn. per mile..... | 1,440        | 1,540        | —            | 100       |

The decrease is less than in any other group except that southwest of St. Louis. Doubtless, however, some of the most important Eastern roads, which have not reported, had a large decrease in August.

That the earnings in August were more unfavorable than in previous months may be seen by the following statement of the increase or decrease in the earnings of each group of roads in each of the last four months:

|                              | August.      | July.      | June.        | May.       |
|------------------------------|--------------|------------|--------------|------------|
| N. W. of St. Paul.....       | \$114,499    | +\$156,320 | +\$147,689   | +\$356,919 |
| W. of Chicago.....           | 628,657      | —101,281   | —379,036     | —18,291    |
| W. & S. W. of St. Louis..... | 51,357       | —149,194   | —146,462     | —165,412   |
| North of the Ohio.....       | 405,898      | —117,007   | —178,123     | —32,493    |
| S. of the Ohio.....          | 324,646      | —114,077   | —60,171      | —122,821   |
| East.....                    | 534,579      | —365,331   | —1,159,850   | —41,694    |
| Total.....                   | —\$1,956,722 | —\$392,182 | —\$1,483,058 | —\$636,092 |

In every group except the Eastern we find a larger decrease or a smaller increase in August than in any of the other three months. The very large decrease on Eastern roads in June was chiefly due to the Reading, which had a decrease of \$661,726 then, owing to a long suspension of coal mining; but excluding the Reading the decrease on the Eastern roads was \$521,000 in June, against \$154,000 in July and \$295,000 in August, June having been exceptionally unfavorable to the trunk lines. In the aggregate, the decrease in the earnings of the roads that have reported for all these months was five times as great in August as in July, and one-third more than in June, while the gain of \$636,000 in May is transformed into a loss of \$1,956,000 in August.

With more unfavorable earnings, reports fall off. Our table last year had reports from 86 railroads, against 72 this year. The comparison this year is with a rather favorable month; last year the roads reporting in August showed a decrease from 1882 of only \$1 (0.15 per cent.) in earnings per mile; in 1882 they showed precisely the same decrease from 1881—that is, they were substantially stationary for the three years 1881, 1882 and 1883. But in 1881, the average earnings per mile were 7 per cent. more than in 1880, when they were 12 per cent. larger than in 1879.

Below we give the earnings per mile in August of

62 railroads for the last six years, or for all those years for which reports are attainable:

Earnings per Mile in August for Six Years.

|                                      | 1879. | 1880. | 1881. | 1882. | 1883. | 1884. |
|--------------------------------------|-------|-------|-------|-------|-------|-------|
| Ala. Great Southern.....             | 1879. | 1880. | 1881. | 1882. | 1883. | 1884. |
| Burl. C. R. & Nor.....               | 283   | 326   | 371   | 349   | 326   | 303   |
| Canadian Pacific.....                | 419   | 521   | 336   | 300   | 299   |       |
| Central Iowa.....                    | 664   | 805   | 753   | 763   | 755   | 712   |
| Charl. Col. & Aug.....               | 133   | 181   | 210   | 148   | 173   | 130   |
| Chesapeake & Ohio.....               | 496   | 596   | 604   | 737   | 778   | 680   |
| Chicago & Alton.....                 | 695   | 966   | 916   | 1,008 | 1,433 | 1,011 |
| Chicago & E. Ill.....                | 473   | 599   | 711   | 697   | 627   | 583   |
| Chicago & N. W.....                  | 579   | 685   | 801   | 665   | 608   | 519   |
| Chicago & W. Mich.....               | 304   | 270   | 376   | 340   | 309   | 296   |
| Chic. Mil. & St. Paul.....           | 336   | 319   | 442   | 355   | 407   | 380   |
| Chic. St. P. Minn. & Om.....         | 324   | 314   | 373   | 406   | 423   | 360   |
| Cin. Ind. St. L. & C.....            | 674   | 557   | 728   | 694   | 737   | 691   |
| Cin. N. O. & Tex. Pac.....           | 443   | 678   | 680   | 718   | 690   |       |
| Cin. Wash. & Balt.....               | 157   | 244   | 253   | 296   | 358   | 334   |
| Clev. Akron & Col.....               | 157   | 244   | 253   | 296   | 358   | 334   |
| Columbia & Greenville.....           | 152   | 166   | 128   |       |       |       |
| Connotton Valley.....                | 275   | 289   | 196   |       |       |       |
| Des Moines & Ft. Dodge.....          | 347   | 337   | 613   | 336   | 287   | 250   |
| Det. Lansing & No.....               | 567   | 473   | 583   | 596   | 586   | 447   |
| Eastern.....                         | 944   | 1,673 | 1,185 | 1,404 | 1,508 | 1,462 |
| E. Tenn. Va. & Ga.....               | 244   | 282   | 321   | 330   | 275   |       |
| E. Lex. & Big Sandy.....             | 417   | 488   | 369   | 414   | 313   |       |
| Evansville & T. H.....               | 400   | 654   | 594   | 610   |       |       |
| Flint & Pere Marquette.....          | 319   | 410   | 495   | 479   | 587   | 482   |
| Grand Trunk.....                     | 590   | 643   | 597   |       |       |       |
| Green Bay, Win. & St. P.....         | 148   | 140   | 141   | 92    |       |       |
| Gulf, Col. & S. F.....               | 387   | 354   | 367   | 263   |       |       |
| Houston, E. & W. Tex.....            | 290   | 253   | 171   |       |       |       |
| Ill. Cen. Ill. & So. Div.....        | 439   | 553   | 627   | 617   | 536   |       |
| Ill. Cen. in Iowa.....               | 267   | 343   | 488   | 369   | 414   | 313   |
| K. C. Ft. Scott & Gulf.....          | 303   | 372   | 433   | 419   | 473   |       |
| Kentucky Central.....                | 489   | 489   | 404   | 370   |       |       |
| Long Island.....                     | 891   | 1,011 | 1,113 | 1,092 |       |       |
| Louisville & Nashville.....          | 401   | 481   | 476   | 515   | 606   | 544   |
| Marquette, H. & Ont.....             | 1,761 | 1,715 | 1,633 | 850   |       |       |
| Memphis & Charleston.....            | 276   | 351   | 410   |       |       |       |
| Mil. Lake Shore & W.....             | 238   | 261   | 309   | 238   |       |       |
| Mobile & Ohio.....                   | 216   | 278   | 318   | 290   | 297   | 270   |
| Nash. Chat. & St. L.....             | 407   | 572   | 456   | 352   | 391   | 596   |
| Norfolk & Western.....               | 315   | 421   | 458   | 519   | 520   | 457   |
| Northern Central.....                | 971   | 1,392 | 1,528 | 1,944 | 1,824 | 1,585 |
| Northern Pacific.....                | 328   | 309   | 576   | 559   | 542   | 415   |
| Ohio & Mississippi.....              | 760   | 789   | 619   |       |       |       |
| Ohio Central.....                    | 362   | 563   | 526   | 468   |       |       |
| Pennsylvania.....                    | 1,593 | 1,989 | 1,975 | 2,391 | 2,307 | 2,148 |
| Peoria, Dec. & Ev.....               | 238   | 348   | 298   | 361   | 314   |       |
| Phila. & Reading.....                | 1,570 | 1,811 | 2,013 | 1,976 | 2,368 | 2,115 |
| Richmond & Danville.....             | 304   | 339   | 389   | 392   | 420   | 387   |
| St. L. A. & T. H.:<br>Main Line..... | 542   | 773   | 644   | 855   | 730   | 525   |
| Belleville Line.....                 | 616   | 546   | 526   | 727   | 520   | 424   |
| St. Louis & San Fran.....            | 464   | 452   | 443   | 578   | 493   | 559   |
| St. Paul & Duluth.....               | 339   | 255   | 479   | 758   | 406   | 404   |
| St. P., Minn. & Man.....             | 243   | 243   | 243   | 243   | 243   | 243   |
| Shenandoah Valley.....               | 230   | 194   | 227   | 247   |       |       |
| Vicksburg & Meridian.....            | 92    | 138   | 154   |       |       |       |
| Vicks. Shreve. & Pac.....            | 383   | 408   | 500   | 426   |       |       |
| Virginia Midland.....                | 162   | 225   | 232   |       |       |       |
| Western N. Carolina.....             | 624   | 1,071 | 1,126 | 1,149 | 1,188 |       |
| West Jersey.....                     | 165   | 185   | 279   | 235   |       |       |
| Wisconsin Central.....               |       |       |       |       |       |       |

We have here the August earnings per mile of 62 railroads for the last three years. Of these 53 were smaller this year than last and 36 were smaller than in 1882. Of 49 that are given for 1881 also, 20 were larger this year; of 37 reported for 1880 also, 24 were larger this year; of 33 reported for 1879 also, 26 were larger this year.

Thus the gains are more than the losses compared with 1879 and 1880, the last of which was financially probably the most prosperous year the railroads of this country ever had. But not a few of the railroads have increased their capital so much since that time that the same earnings per mile will not adequately support them now. Seven roads, the Elizabethtown, Lexington & Big Sandy, the Kansas City, Fort Scott & Gulf, the Memphis & Charleston, the Vicksburg & Meridian, the Vicksburg, Shreveport & Pacific, the Western North Carolina, and the West Jersey, had larger earnings per mile last August than in any other reported; but four of these have reported but three years. Of thirteen others, the Alabama Great Southern, the Chicago & Alton, the Cincinnati Southern, the Cleveland, Akron & Columbus, the Eastern, the Grand Trunk, the Long Island, the Louisville & Nashville, the Ohio Central, the Reading, the St. Paul & Duluth, the Shenandoah Valley and the Virginia Midland, the earnings per mile were larger this year than in any other except last year, which was doing very well indeed. Of 17 roads the earnings per mile this year were less than in any other reported—namely, the Canadian Pacific, the Central Iowa, the Charlotte, Columbia & Augusta, the Chicago & Northwestern, the Cincinnati, Washington & Baltimore, the Columbia & Greenville, the Connotton Valley, the Des Moines & Fort Dodge, the Detroit, Lansing & Northern, the Green Bay, Winona & St. Paul, the Gulf, Colorado & Santa Fe, the Houston, East & West Texas, the Kentucky Central, the Marquette & Ontonagon, the Ohio & Mississippi and both the Main Line and the Belleville Line of the Alton & Terre Haute—a very bad showing, indeed. Four others, the Central Pacific, the Chicago & Eastern Illinois and both the Iowa lines and the other lines of the Illinois Central, had smaller earnings per mile than in any other year since 1879.

August for many railroads is virtually the end of the crop year. The new crop year is giving the railroads more wheat to carry than last year, but the stocks of corn are nearly exhausted, and the great new crop, which has had time to mature most completely, will not be fit to move until December and will not be likely to come forward in large quantities until January. The fall months will differ from August, so far as crop movement is concerned, chiefly by movement of the new spring wheat. This crop was large last year, but is larger this year.



# THE CROP MOVEMENT, RAILROAD EARNINGS AND TRADE.

Railroad earnings have been unsatisfactory of late, contrary to the expectations of those who counted on an improvement of them, and of almost all business, as a result of the good crops. In July there was but a part of one crop ready to market, and few railroads could profit by the abundance of that; in August, winter wheat generally could be marketed and also some of the spring wheat of Nebraska and Iowa, and oats from a large extent of country; but in the part of the spring wheat country which attracts most attention August is the harvest month, and the marketing of grain hardly begins until September. The returns of the Northwestern wheat roads have therefore been watched very anxiously since August for indications of the improvement which was to signalize a general improvement in business and a rise in the prices of stocks. As in many cases where favorable changes were looked for they have not come, those who still count on a great improvement in earnings as an effect of the recent bountiful harvests have quite generally charged the light railroad earnings and the failure of other business to revive as much as was expected on the disposition of the farmers to hold back their crops for higher prices, and we are promised something like a boom when at last they market their wheat, as they must eventually. So generally has this been said and repeated and insisted upon, that it appears to be almost universally accepted as true that the amount of wheat marketed by the farmers since harvest has been exceptionally small this year. So far as we know, no one heretofore has questioned it, there being apparently a repugnance to examining recorded facts in matters of this kind, and an easy acceptance of vain imaginings, though transactions of great importance are based on them. It will therefore astonish many, doubtless, when we affirm that notwithstanding the very low prices the movement of wheat from the farmers to the Northwestern primary markets has not been light this year; that it has been heavy instead; that it has even been larger this year than ever before in the history of the country. We not only affirm this, but we purpose to prove it.

The receipts of wheat at the Northwestern markets (St. Louis, Peoria, Chicago, Milwaukee, Duluth, Detroit, Toledo and Cleveland) for the four weeks ending Aug. 30, and three weeks ending Sept. 20, have been, in bushels, for fifteen years:

| Year. | 4 weeks to Aug. 30. | 3 weeks to Sept. 20. | Year. | 4 weeks to Aug. 30. | 3 weeks to Sept. 20. |
|-------|---------------------|----------------------|-------|---------------------|----------------------|
| 1870  | 5,485,187           | 3,857,886            | 1878  | 10,893,718          | 9,282,725            |
| 1871  | 6,772,451           | 6,571,879            | 1879  | 10,947,633          | 11,197,550           |
| 1872  | 5,645,370           | 4,614,559            | 1880  | 11,655,396          | 6,632,011            |
| 1873  | 7,236,133           | 11,600,205           | 1881  | 7,949,929           | 3,910,987            |
| 1874  | 7,922,516           | 4,797,420            | 1882  | 9,676,414           | 8,610,152            |
| 1875  | 5,360,801           | 5,440,244            | 1883  | 10,079,663          | 9,295,958            |
| 1876  | 3,327,013           | 4,462,539            | 1884  | 12,087,268          | 10,472,774           |
| 1877  | 4,898,284           | 8,857,375            |       |                     |                      |

So far from being light is the movement of wheat this year to the markets which receive directly from the farmers' stations, that it is the heaviest ever known. The August receipts were never equaled; the receipts for the first three weeks of September are the largest since 1879, but were exceeded slightly in that year and more in 1873, the latter being the three weeks immediately preceding the Jay Cooke panic. Taking the seven weeks together, however, the receipts this year were 16½ per cent. more than last year, 23 per cent. more than in 1882 (when the wheat crop this side of the Rocky Mountains was larger than this year and stocks were booming); also 22 per cent. more than in 1880, when the country was in the full flush of prosperity; 2 per cent. more than in 1879, when the receipts approached nearest to those of this year, and 20 per cent. above those in 1873, when the September receipts were larger than this year.

But even this does not show the whole increase in the marketing of wheat since harvest over most previous years, because it does not include the flour receipts, which are much larger now than they were a few years ago. For the period from Aug. 1 to Sept. 20, they have been:

| Year. | Barrels.  | Year. | Barrels.  |
|-------|-----------|-------|-----------|
| 1877  | 924,304   | 1881  | 1,352,125 |
| 1878  | 921,977   | 1882  | 1,172,903 |
| 1879  | 1,002,349 | 1883  | 1,271,724 |
| 1880  | 1,079,129 | 1884  | 1,419,394 |

Thus the flour receipts this year were no less than 41½ per cent. larger than in 1879, when the wheat movement was but 2 per cent. less than this year. Flour receipts have increased doubtless because the mill capacity has increased and the mills try to keep busy whether the wheat crop is large or small. If we take flour and wheat together for the seven weeks, we have as the total bushels received at the Northwestern markets in the years when receipts were largest and seemed to cause prosperity:

| Year.      | Barrels.   | Year. | Barrels.   |
|------------|------------|-------|------------|
| 1878       | 26,065,753 | 1882  | 23,564,629 |
| 24,328,380 |            | 1883  | 25,068,424 |
|            |            | 1884  | 28,947,315 |

The receipts were thus very decidedly larger this

year than in any other, even 2,800,000 bushels (9 per cent.) more than in 1879, and 5,383,000 (23 per cent.) more than after the great wheat harvest of 1882.

Thus we see that bad railroad earnings and bad trade at this time cannot be charged upon the failure of the wheat crop to move. There is a very large crop and it has come forward since July not less rapidly but more rapidly than ever before.

In fact, a slow movement of an assured crop would not be likely to affect railroad earnings so much as they have been affected during the last two months. The direct income from the carriage of grain is not a very large part of the income of many railroads, and the effect of the crop on other traffic does not depend largely on the time it is marketed. If a farmer has a thousand dollars worth of produce to market, he bases his consumption on his ability to purchase, and not on the amount of money which he may happen to have in his pocket or in bank at the time—for all the world just like other people. Whether he sells now or next winter makes comparatively little difference in his purchases. The merchants who supply him lay in the stocks which they think he and his neighbors will require often before the wheat is threshed. If the crops and the prices and the farmers' circumstances generally warrant their making large purchases of lumber, supplies, etc., the merchant has them ready for them, whether their crop is sold or not. But if he has reason to believe that they will not buy much, he will provide little for them to buy. This inability or indisposition to buy on the part of the farmer may be the result of many things besides poor crops. Low prices is one cause; in a new country, where the larger number have gone in debt to pay for buildings, stock and tools, the failure to realize what may have been extravagant expectations of profit is a very common cause, because, with good crops and a reasonable profit, the farmer may have difficulty in paying his debts, and consequently buy nothing but what is absolutely necessary.

But it is a mistake to suppose that the traffic to and from the farmer yields the great bulk of the earnings even of Western railroads. There is a very large town population which for a few years past has increased with much greater rapidity than the country population (which in most states has not increased at all), and has been most actively engaged in multiplying mills, factories and many kinds of productive enterprises. These have given an enormous traffic to the railroads. It is true that eventually their prosperity depends upon the prosperity of the farmers, but for years they have been prosecuted whether crops were good or bad, and some are even now only approaching completion. Now, the extension of such enterprises is at a dead stand-still. Those recently completed are fortunate if they can find employment. This at once cuts off an important source of earnings, and as it is universally recognized that there is little room for any more such enterprises (for a time), not even large crops and high prices for them would be likely to restore this source of earnings. Large crops and low prices certainly are not doing it.

The fact is, that there is a certain rapidity of growth which cannot possibly continue; but it cannot be checked without great suffering to many. We have just passed through such a period; the checking of the growth did not come as suddenly as it sometimes does; but it hurts, and is hurting yet. The good wheat crop helps us, and the good corn crop will, we think, help us still more, but together they will not restore the activity of some previous years, and certainly not the activity in new enterprises, which is what we miss most. We had gone wrong longer and further than most of us were willing to admit, and the return to a thoroughly healthy condition of things is going to be slower than is agreeable.

To those who count confidently on heavy crops to rescue us at once from any pit into which we have fallen we commend the statement in the table above of the wheat movement in 1873. The crop that year was exceptionally large, and the price was extraordinarily high. We exported in that crop-year wheat and flour of the value of \$130,680,000, while the greatest exports previously were but \$70,834,000. The crop was immensely valuable to us, and it made the earnings of many railroads larger than ever before. It is needless to say, however, that it did not bring good times. We had gone too far to be saved by a big crop.

We are now suffering from a condition of things similar to that in 1873, and similarly caused. It has not come all at once like a stroke of paralysis, but was for three years visibly approaching, and was, to some extent, prepared for. But we may not conclude that

because the attack has been less sudden and severe the recovery will be instantaneous. We may reasonably hope to begin to grow better soon; but we shall have to wait awhile yet, we fear, before we get well.

## The Trunk Line Troubles

There has not been since the railroad war of 1881 so serious a disturbance of the harmony of the trunk lines and their Western connections as there has been for some ten days past, nor of the rates which have been maintained by that harmony. Even west-bound rates, which have generally been well maintained while east-bound rates and passenger rates were disturbed, have been demoralized, and at the beginning of this week grain was taken from Chicago for New York at 15 cents and provisions at 20 cents per 100 lbs., while the regular rates were 25 and 30 cents. There have been several unsettled questions which perhaps contributed to this condition of things; but the chief seems to have been the position of the Grand Trunk with regard to accepting the decisions of the arbitrators who revised the percentages of the Chicago shipments awarded by Mr. Fink. It has claimed that the award was made under a misapprehension of the facts, and that justice called for a revision. The other roads have urged that the Grand Trunk had agreed to the arbitration, and that it should accept the decision, even if it is disagreeable. It was finally proposed that the case should be submitted to arbitration again, but then there was a dispute as to the date when the new decision should become operative. The Grand Trunk wanted it to date from the beginning of this year, when what it claims to have been the unfair apportionment took effect; the other roads would not have it date further back than the middle of the year. On this rock they promised at one time to split, but it was finally agreed that the arbitrators who make the apportionment shall also determine at what time their apportionment shall take effect.

Another very sore point concerned the payment of balances pending the arbitration. According to the decision of the arbitrators, the Grand Trunk owed the other roads, for freight in excess of its share, about \$100,000. The Grand Trunk wished that it should be exempt from paying this balance until by the new arbitration it should be determined whether it should be paid at all. The other roads claimed that this is money owed them, and long over-due, and that the Grand Trunk should pay the judgment rendered by the previous court before it brings another suit. On this point the Grand Trunk finally gave way, we understand, but there remained a difference as to the rate at which part of the shipments, should be calculated, and though this made but an insignificant difference in the balance to be paid over, and as by the new arbitration all this balance may have to be paid back to the Grand Trunk, we understand that both sides insisted very strongly on their own view at the conferences, and as we write it is not certain that it is yet determined, though it does not seem possible for either party to sacrifice what may be millions of net earnings for so trifling a cause. Meanwhile action has been taken as if everything was settled. Orders were issued by all parties to restore west-bound rates last Monday, and east-bound rates last Wednesday.

The disturbance is especially to be regretted because it leaves the several negotiators in a state of mind and temper which is apt to further delay an extension of the combination which seems absolutely necessary to the maintenance of passenger rates or the constant maintenance of freight rates, the Grand Trunk's help being especially necessary. We do not understand that the West Shore has caused much trouble, though as it has been free to make rates on west-bound freight, and by underbidding must have taken away some of the customers of other roads, the latter may have demoralized rates by endeavoring to save their traffic, which was an unwise thing to do, as the West Shore had not carried the 10 per cent. to which it is entitled. Now we understand that the West Shore claims to be able to deliver freight as promptly as the other roads, and demands its balance at full rates if it does not carry its full share—to which it will be entitled if it maintains rates. We cannot believe that the differences with the Grand Trunk (which are likely to be determined before this is published) will result in a railroad war; but we certainly seemed very near to one last week and in the first days of this, and if one comes it will be most disastrous to many companies.

With the death of Mr. John W. Garrett there disappears from the scene one of the great American railroad executives of what may be called the second stage of the railroad era—the stage when men of strong



will seized the disjointed fragments of a railroad system and the chaos of loose managements and organized systems and administrations, though the latter in many cases had little other virtue than unity and force reflected from the autocratic head. Mr. Garrett began his railroad career at the top, stepping from his banking house to the presidency of the Baltimore & Ohio Railroad when it was under political management and needed nothing so much as an executive who would be merciless in rooting out abuses. Though a much younger man than the late Commodore Vanderbilt, he became a railroad manager four years earlier, and had long been, in length of service, the oldest of the railroad presidents who are active managers. Probably no railroad president, unless he was himself a chief owner of the railroad he managed, like the Vanderbilts, has had such complete freedom of action. No stockholder, at least of late years, seemed to question the wisdom of his policy, and he conducted the affairs of the company without the sharp outside criticism which annoys most railroad executives, and often keeps them from going wrong. But although Mr. Garrett may have made mistakes in judgment, and certainly was not a leader in railroad progress, so far as concerns methods of working and quality of service, he was always faithful to his trust, and worked most earnestly and successfully for the interest of his company. He leaves a place which it will be hard for any man to fill, for Mr. Garrett was felt throughout the company. In the administrations fitted to railroads as they are now developed, the chief executive plays no such great part, but acts and must act through heads of departments who for the most part act on their own responsibility.

The largest train-load ever hauled from Buffalo to New York is said to have been a train of 60 cars loaded with 1,131 tons of freight that was dispatched from Buffalo Saturday evening, Sept. 20, and reached New York the following Monday evening, having been hauled by one locomotive. This is equivalent to 37,700 bushels of wheat, and at current rates, subtracting 3 cents per 100 lbs. for the terminal charge at New York, the earnings from it were about \$1,360, or \$3.24 per train-mile. Fourteen such trains daily would carry more in a year than the total receipts of grain and flour at New York, by water as well as rail, in the year when they were largest, and about eight such trains would carry the total through rail shipments of all freight but live stock from Chicago to the East in the year when they were largest. If the West Shore had demonstrated that it could get traffic for a few trains of this kind every day, its financial difficulties would disappear like the mist. But it is not an altogether satisfactory condition of things to have a water-wheel that could utilize all the power of the Niagara, if there is nothing but a brook to run it with.

Of course the important thing for the West Shore to show in its present condition is that it can do work at a very low cost. To fit it to do this was the chief aim of the remarkably able staff of men who constructed it, and if it is true that under ordinary circumstances it can haul a train-load of 1,000 tons or more over the whole length of its line with one locomotive, then doubtless with approximately the same amount of traffic as the other trunk lines, its expenses per ton will be decidedly less than on the best of them. It costs more to move a big train than a little one, but the increase in cost is not nearly in proportion to the increase in load. Nevertheless, a road with a very few very large trains may have larger expenses per ton per mile than one with a great many lighter trains, because there are many expenses that are not much increased by increasing the number of trains.

The recent changes in the percentages carried from Chicago eastward by the several railroads have been generally toward correcting excesses or shortages which had accumulated previously. The Chicago & Grand Trunk was far ahead of its proportion in August, and though for several weeks it has carried less than its share, it is still somewhat ahead. The Chicago, St. Louis & Pittsburgh was very far behind in August, and notwithstanding that it has of late weeks sometimes carried twice its share of the week's shipments, it is probably still behind. The Lake Shore and the Michigan Central were far behind, and the Michigan Central must be still, and though the Nickel Plate was and is ahead, the three Vanderbilt roads together must still be short; and so is the Chicago & Atlantic, which in one or two late weeks has had a large percentage. The roads which were largely over early in September were the Chicago & Grand Trunk, the Fort Wayne (which was not as much over as the other Pennsylvania road was short), and the Balti-

more & Ohio. The reports since indicate that the differences have been considerably reduced since, and that no road which was over then has increased the balance which it owes the other roads, except possibly the Fort Wayne. The unquestionable cutting of rates during the past two weeks has tended to a settling of balances.

Duluth, after long waiting, has realized the object of its early ambition, and become, for the time at least, a great wheat-receiving market. During the week ending Sept. 20 it received more wheat than St. Louis, Chicago or Toledo—more than any other Western market, though some of these had important receipts. The receipts at Duluth in that week were also considerably greater than its receipts during the whole of the three months ending with August, and its receipts for the two weeks after Sept. 6 were larger than for the whole of the year (36 weeks) down to Sept. 6.

There is reason why the season at Duluth should be very short and very active. Its receipts are chiefly from Northwestern Minnesota and Dakota, where the harvest is not always finished till September (wheat was standing this year Sept. 10 near Pembina). Thus it is not possible to market the new crop until two months after. St. Louis and other places have begun to receive new wheat from Kansas, Missouri and Southern Illinois. For several years receipts have first begun to be important at Duluth in the second week of September. Then navigation closes in the St. Mary's Canal before the end of November, leaving but about 2½ months during which shipments by lake are practicable. Shipments by rail are not likely to be made from Duluth, because there is a shorter rail haul for the grain by way of St. Paul.

But again, the Dakota wheat growers are more likely than others to market their wheat soon after harvest, because they are poorly provided with granaries for storing it, and to save labor they thresh as much as possible directly from the shocks in the fields. Apparently they avoid putting off work of this kind until winter, though there is little else that is possible for them to do there at that season.

But it is possible to handle a great deal of wheat within ten weeks when it comes in, as it did at Duluth in the third week of September, at the rate of 964,000 bushels a week.

Montreal does not seem to have profited much by the enlarged Welland Canal. Its grain receipts for the 38 weeks of the year down to Sept. 20 in successive years have been:

| 1879.     | 1880.      | 1881.     | 1882.     | 1883.     | 1884.     |
|-----------|------------|-----------|-----------|-----------|-----------|
| 9,819,831 | 12,767,123 | 8,785,012 | 6,169,332 | 8,111,078 | 5,727,049 |

Thus its receipts this year have been 30 per cent. less than last year, and even 7 per cent. less than in the very unfavorable year 1882, and very much less than in earlier years.

It is true that there has been a great decrease in receipts at Atlantic ports generally, but Montreal's decrease has been larger than the average, and its percentage of the total Atlantic receipts has been the smallest for three years.

#### August Accidents.

Our record of train accidents in August, given in full elsewhere, contains notes of 28 collisions, 54 derailments and 7 other accidents, a total of 89 accidents, in which 38 persons were killed and 112 injured. The number of accidents was the same as in July.

As compared with August, 1883, there was a decrease of 55 accidents, of 4 in the number killed, and of 24 in that of injured.

These accidents may be classed as to their nature and causes as follows:

| COLLISIONS:                      |    |
|----------------------------------|----|
| Rear .....                       | 20 |
| Butting .....                    | 6  |
| Crossing .....                   | 2  |
| —28                              |    |
| DERAILMENTS:                     |    |
| Broken rail .....                | 2  |
| Broken bridge .....              | 3  |
| Spreading of rails .....         | 7  |
| Broken axle .....                | 5  |
| Broken truck .....               | 3  |
| Broken coupling .....            | 1  |
| Accidental obstruction .....     | 4  |
| Land-slide .....                 | 1  |
| Misplaced switch .....           | 1  |
| Flying switch .....              | 1  |
| Purposely misplaced switch ..... | 1  |
| Rail purposely removed .....     | 1  |
| Malicious obstruction .....      | 2  |
| Unexplained .....                | 17 |
| —54                              |    |
| OTHER ACCIDENTS:                 |    |
| Boiler explosions .....          | 4  |
| Broken coupling-rod .....        | 2  |
| Car burned while running .....   | 1  |
| —7                               |    |
| Total .....                      | 89 |

Four collisions were caused by trains breaking in two; two by fog; one each by a runaway engine and by a misplaced switch.

A general classification of these accidents may be made as follows:

|                               | Collisions. | Derailments. | Other. | Total. |
|-------------------------------|-------------|--------------|--------|--------|
| Defects of road .....         | 12          | 12           | 12     | 36     |
| Defects of equipment .....    | 5           | 10           | 6      | 21     |
| Negligence in operating ..... | 21          | 7            | 1      | 28     |
| Unforeseen obstructions ..... | 2           | 4            | 1      | 7      |
| Maliciously caused .....      | 4           | 1            | 1      | 6      |
| Unexplained .....             | 17          | 1            | 1      | 19     |
| Total .....                   | 28          | 54           | 7      | 89     |

As usual, negligence in operating was the cause to which the largest proportion of accidents is attributed, 32 per cent. being charged directly to that account. Defects of equipment came next, causing 24 per cent. of all the accidents.

A division according to classes of trains and accidents is as follows:

|                                | Collisions. | Derailments. | Other. | Total. |
|--------------------------------|-------------|--------------|--------|--------|
| Accidents:                     |             |              |        |        |
| To passenger trains .....      | 3           | 19           | 2      | 24     |
| To a pass. and a freight ..... | 3           | 1            | 1      | 5      |
| To freight trains .....        | 22          | 35           | 5      | 62     |
| Total .....                    | 28          | 54           | 7      | 89     |

This shows accidents to a total of 117 trains, of which 30, or 26 per cent., were passenger trains, and 87, or 74 per cent., were freight trains. This is probably nearer the true proportion than a necessarily imperfect record usually shows.

Of the total number of accidents, 53 are recorded as happening in daylight, and 36 at night.

The persons killed and injured were as follows:

|                          | Killed. |         |        | Injured. |         |        |
|--------------------------|---------|---------|--------|----------|---------|--------|
|                          | Em-     | Others. | Total. | Em-      | Others. | Total. |
|                          | ployés. |         |        | ployés.  |         |        |
| In collisions .....      | 5       | 3       | 8      | 9        | 21      | 30     |
| In derailments .....     | 18      | 3       | 21     | 26       | 52      | 78     |
| In other accidents ..... | 7       | 2       | 9      | 2        | 2       | 4      |
| Total .....              | 30      | 8       | 38     | 37       | 75      | 112    |

Employees thus formed 79 per cent. of the killed, 33 per cent. of the injured and 45 per cent. of the total number of casualties, an unusually small proportion.

Persons were killed in 6 collisions, 16 derailments and 3 other accidents, and injuries (but not death) were caused in 6 collisions, 11 derailments and 2 other accidents. In all 25 accidents caused death and 19 injuries but not death, leaving 45, or 51 per cent. of the whole number, in which no serious injury to persons is recorded. This proportion will average much nearer two thirds than one-half in a series of months.

Quite a number of the killed and injured were tramps or persons stealing a ride. These casualties perhaps swell the list unduly, for the tramp necessarily takes far greater risks than the passenger and even the trainman, riding often in exposed places, and on freight trains sometimes shut in, so that his chance of escape in case of accident is very small.

The month breaks the rule, established in a series of years during which this record has been kept, that August is a bad month for accidents. The number of accidents was the same as in July and was less than in seven out of the past twelve months. The number of collisions was very small, and there was almost a complete absence of accidents due to storms or heavy rain.

It may be noted that seven accidents, one collision and six derailments, were due to misplaced switches. It may be also noted that besides the three broken bridges, a fourth failed on account of the derailment of a train passing over it. As in July, there was an unusual number of boiler explosions, probably from the same causes.

For the year ending with August the record is as follows:

|                 | Accidents. | Killed. | Injured. |
|-----------------|------------|---------|----------|
| September ..... | 158        | 44      | 183      |
| October .....   | 174        | 43      | 234      |
| November .....  | 122        | 34      | 235      |
| December .....  | 112        | 32      | 113      |
| January .....   | 147        | 56      | 240      |
| February .....  | 110        | 22      | 150      |
| March .....     | 115        | 26      | 112      |
| April .....     | 88         | 19      | 108      |
| May .....       | 78         | 32      | 150      |
| June .....      | 71         | 40      | 103      |
| July .....      | 89         | 25      | 142      |
| August .....    | 89         | 38      | 112      |
| Total .....     | 1,351      | 411     | 1,942    |

|                                   |       |     |       |
|-----------------------------------|-------|-----|-------|
| Total, same months, 1882-83 ..... | 1,636 | 466 | 1,754 |
| " " " 1881-82 .....               | 1,323 | 407 | 1,558 |
| " " " 1880-81 .....               | 1,461 | 394 | 1,518 |

The yearly average for the four years was 1,443 accidents 420 killed and 1,693 injured. Last year was below the average, except in the number injured.

The averages per month for the year were 113 accidents, 34 killed and 163 injured, August being below these averages except in the number killed.

The averages per day for the month were 2.87 accidents, 1.23 killed and 3.61 injured; for the year, there were 3.69 accidents, 1.12 killed and 5.81 injured.

The average casualties per accident were, for August, 0.427 killed and 1.358 injured; for the year, 0.304 killed and 1.437 injured, the month having more than the year's average of killed, but less of injured.

#### Recent Railroad Earnings in the North-west.

Some favorable changes in earnings have occurred since August, but favorable changes have not occurred in some cases where they were expected. The Canadian Pacific, whose earnings in August were less this year than last, gained 30 per cent. in the first week of September, 15 per cent. in the second and 17 per cent. in the third week. The Northern Pacific also had a decrease of earnings in August; the course since has been irregular—a gain of 28 per cent. in the first week of September and of 24 per cent. in the second week, but a loss of 9 per cent. in the third week. The irregularity was not in this year's but in last year's earnings. This year the earnings varied very little from \$270,000 per week; last year they jumped from \$225,250 in the second week to



\$297,250 in third week, which was the week of the great opening celebration, and the fares of the great army of excursionists were probably all entered as earnings then. The earnings in September this year were \$39,225 per day, against \$32,803 in August; showing an increase of nearly 20 per cent. The September earnings were larger than the August by 14½ per cent. last year, 6 per cent. in 1882, and 16½ per cent. in 1881, so that the progress this year is favorable. The very large wheat receipts at Duluth in the second and third weeks of September indicate that this road and the Manitoba are feeling the full effect of the crops on their lines. The latter does not report weekly, but it has a much larger mileage than the Northern Pacific in the wheat country, and last year earned 24 per cent. more in September than in August. Both the Manitoba and the Northern Pacific have always had their maximum earnings in October.

But while the roads northwest of St. Paul have been making a very good showing, those which give these lines an outlet to Lake Michigan have not been doing so well. They all have gains over their August earnings, but compared with September last year they show declines, which on the Northwestern are very large. Thus the Chicago, Milwaukee & St. Paul in August earned 1½ per cent. less than last year; in the first three weeks of September 5½ per cent. less; the Chicago & North Western, however, which suffered the very large decrease of 16½ per cent. in August lost 11½ per cent. in September; the St. Paul & Omaha had a decrease of 6 per cent. in August and 1¼ per cent. in September. The Northwestern has made no progress from week to week this year in September as it did last year, when its earnings were:

|                                 | 1st week. | 2d week.  | 3d week.  |
|---------------------------------|-----------|-----------|-----------|
| September.....                  | \$548,300 | \$585,100 | \$606,300 |
| While this year they have been: |           |           |           |
| September.....                  | \$512,800 | \$514,800 | \$516,200 |

Last year its earnings in the third week were 10½ per cent. more than in the first week of September, and 11½ per cent. more than its average weekly earnings in August; this year they were but ¾ per cent. more in the third week of September than in the first week, but were 14½ per cent. more than the very light August average.

The recent course of earnings on four of the roads northwest of Chicago may be traced below, where the average earnings per week in August are compared with those of each of the first three weeks of September this year and last:

|                           | Aug. average.     | 1st week. | 2d week.  | 3d week.  |
|---------------------------|-------------------|-----------|-----------|-----------|
| Chic., Mil. & St. P. .... | 1884.....\$37,464 | \$475,000 | \$471,000 | \$519,000 |
|                           | 1883.....395,435  | 500,774   | 514,928   | 531,229   |
| Chic. & N. W. ....        | 1884.....451,545  | 512,800   | 514,800   | 516,200   |
|                           | 1883.....542,703  | 548,300   | 585,100   | 606,300   |
| Chic., St. P. & Om. ....  | 1884.....104,979  | 109,500   | 110,200   | 121,900   |
|                           | 1883.....111,778  | 103,900   | 120,400   | 122,400   |
| Burl., C. R. & Nor. ....  | 1884.....48,909   | 58,954    | 61,413    | 58,991    |
|                           | 1883.....52,505   | 62,392    | 62,601    | 69,128    |

All these roads had fine crops of small grain on them in both years, but the crop of wheat in Minnesota and Dakota, where they have a large mileage, was much the larger this year, due to an immense increase in acreage in Dakota, and to a considerable increase in acreage and a better yield per acre in Minnesota. None of these had much corn to carry in either year. It has been common to charge the failure of the earnings to increase in September to the action of the farmers holding back their wheat for higher prices. We show elsewhere that, taking the West as a whole, there has been no such holding back, but that more wheat has been marketed this year than ever before. For these separate roads we cannot speak, but they are the chief carriers of flour and of spring wheat.

#### The Janney Coupler.

We regret that through an unfortunate misapprehension we should have done some injustice to the Janney freight car coupler in our account of that and other freight car couplers last week. We erroneously stated that the coupling pin must be dropped by hand in order to effect the coupling. This is only true when the pin is set in its highest position by the hand lever in order that the cars may not couple when they come together. When the pin is properly set, the cars couple automatically. The coupling pin is provided with a small inclined plane and a spiral spring. The spring tends to keep the pin down. When two cars come together the inner end of the knuckle strikes the inclined plane on the coupling pin, and, lifting it, allows the knuckle to assume the coupled position. The spring then pulls the pin down again and locks the knuckle firmly in position, thus completing the coupling.

To prepare the cars for coupling one or both of the knuckles on either car must be open, and the levers on both cars should be set for coupling. No further attention then is needed, as the cars will come together and couple. If the lever on either car is set not to couple, the lever must be released before the cars come together. This can be done from the side of the car. The cars can be uncoupled by means of the lever at the side without going between the cars.

When coupling with an ordinary draw-head, the distance from the centre of the pin in the outer end of the knuckle to the face of the knuckle being smaller than in ordinary drawheads, the coupling link can assume a larger angle than would seem probable from the depth of the slot in the knuckle, thus facilitating the coupling of cars of unequal heights.

Chicago through and local shipments eastward of flour, grain and provisions, for the week ending Sept. 27, by the incomplete report to the Board of Trade, were 40,516 tons

this year, against 44,001 in the corresponding week of last year and 23,457 in 1882. For six successive weeks the tons shipped and the percentage carried by each railroad have been:

|                     | Aug. 23. | Aug. 30. | Sept. 6. | Sept. 13. | Sept. 20. | Sept. 27. |
|---------------------|----------|----------|----------|-----------|-----------|-----------|
| Tons.....           | 3,425    | 3,406    | 3,774    | 2,785     | 3,823     | 5,396     |
| Flour.....          | 23,268   | 18,792   | 15,531   | 17,154    | 22,916    | 26,541    |
| Grain.....          | 7,712    | 7,554    | 7,980    | 8,263     | 7,420     | 8,579     |
| Provisions.....     | 34,405   | 29,932   | 27,285   | 28,202    | 34,159    | 40,516    |
| Per cent.:          |          |          |          |           |           |           |
| C. & Grand Tr. .... | 13.5     | 12.2     | 8.6      | 10.1      | 8.4       | 6.6       |
| Mich. Cen. ....     | 11.8     | 9.1      | 10.7     | 8.3       | 8.7       | 17.0      |
| Lake Shore.....     | 21.2     | 16.9     | 19.0     | 15.0      | 14.7      | 15.5      |
| Nickel Plate.....   | 12.2     | 13.5     | 9.9      | 11.5      | 8.2       | 7.7       |
| Ft. Wayne.....      | 18.6     | 14.8     | 16.0     | 19.3      | 20.8      | 17.3      |
| C. St. L. & P. .... | 6.3      | 10.1     | 13.6     | 16.6      | 14.5      | 16.6      |
| Balt. & Ohio.....   | 7.9      | 11.4     | 12.2     | 7.7       | 9.1       | 8.0       |
| Ch. & Atlantic..... | 8.5      | 10.0     | 6.0      | 11.5      | 15.6      | 11.3      |
| Total.....          | 100.0    | 100.0    | 100.0    | 100.0     | 100.0     | 100.0     |

The increase last week over the previous week was 19 per cent., and the shipments were the largest since the 15-cent rate expired. They were less than in the corresponding week of last year, we have seen, when the regular rate was the same, but there was cutting by some of the roads; and they were somewhat larger than shipments at this season have usually been in previous years. The gain over the previous week was 41 per cent. in flour, 16 per cent. in grain and 15 per cent. in provisions. The division of the provision shipments among the several railroads was much the same as in other recent weeks, the two Pennsylvania roads taking 51½ per cent. of the whole, the Lake Shore 17½ per cent., and the Chicago & Grand Trunk 13½ per cent. The Chicago & Atlantic took no provisions at all, but came within 7 tons of having the largest grain shipments. The Michigan Central had 39 per cent. of the flour, and the Chicago, St. Louis & Pittsburgh 20 per cent. Without any doubt rates were badly demoralized.

In the percentages the remarkable feature is the very small share taken by the Chicago & Grand Trunk, which, however, still owes traffic to the other roads; a greater change is the great gain by the Michigan Central, which had not for a long time had its proper share, and is still far behind. The Chicago, St. Louis & Pittsburgh had again more than double its share, but it doubtless leaves it still a creditor of the other roads. The effect of the cutting seems to have been toward settling the balances in the pool, the roads which were short taking in traffic at reduced rate what was owed to them in money at full rates.

The Chicago corner in corn continued till the end of the month, the price last week varying from 71 to about 80 for deliveries in September, and the closing price on the 30th reaching 90. Of course corn was hurried forward by all who could possibly spare any, and it does credit to the knowledge of the bulls that the receipts were after all not very large—little larger than before the high September prices were made. Of course if they had not felt confident that there was very little corn in the country they would not have attempted to corner it so early in the month; otherwise they might have been compelled to take a million of bushels a day or more, at 30 cents more than they could sell it for. Shipments of corn to Chicago were made to that market from Buffalo and New Orleans, but its receipts were only as follows:

|                | 1st week. | 2d week.  | 3d week.  | 4th week. |
|----------------|-----------|-----------|-----------|-----------|
| September..... | 1,670,449 | 1,520,693 | 1,048,080 | 1,633,000 |

In the first two days—the last days of the month—the receipts were about 1,100,000 bushels, and in them alone do we see evidence of the stimulus caused by the temporary high prices. The corner developed in the third week of the month, in time for shipments to be made for ten days to take advantage of the high prices. But probably the chief stocks unmarketed were west of the Missouri River, and required some days to reach Chicago. Under the circumstances it was to be expected that the stocks at St. Louis, Peoria, Kansas City and Milwaukee would go to Chicago, but the bulls doubtless foresaw this, and got control of them before they raised the prices. What they could not get control of was the country stocks, and the comparatively small receipts show that these must be nearly exhausted. While the closing price for delivery on Tuesday was 90 cents, for delivery on Wednesday or any other day in October it was but 57 cents. We may imagine, therefore, that a desperate effort has been made by all holders of corn who were not engaged in the manipulation to get their grain to Chicago in time for delivery in September. Doubtless the time was insufficient for every one to do this, otherwise there would be no more corn come in until the new crop is fit to ship, except what the bulls had controlled and held back. The price for October delivery, though so much less than the September price, is 10 cents higher than the November and 17 cents higher than the price for December. Hence we may expect what little sound old corn there is left to come forward this month. On the whole the corner must have increased the traffic of the corn roads in September and will reduce it in October.

Many of our readers will be interested in the following letter which appears in the *American Machinist*, and confirms the views expressed in our columns as to the advisability of using an I section for the coupling-rods of fast passenger engines:

"Our attention has been called to paragraph on page 6 of your issue of Sept. 20 in which you say that the Pennsylvania Railroad Company have had trouble with locomotive side-rods breaking, and have concluded to go back to the plain section of rod.

"As this may possibly be misleading to some of your readers, I would say, that for a long time we have had no

broken rods, and are fully convinced that the I section of rod, as at present used, is the best form for side-rods.

THEO. N. ELY,

Supt. of Motive Power Penna Railroad.

ALTOONA, Pa., Sept. 15, 1884."

In contrast to this statement, we may mention that the Locomotive Superintendent of the Great Western Railway (England), lately stated at an inquest on a fatal accident caused by the breakage of a side-rod, that on his line 66 side-rods had been broken in the three years ending June 30, 1884. In only one case did the engine leave the track.

The total number of locomotives on the English road is about the same as on the Pennsylvania, but the total number of coupling-rods is doubtless less, as single engines are used in place of coupled for the fastest express trains, and six-coupled in place of consolidations for coal and freight trains. The English line should therefore show a smaller number of breakages. The difference appears, therefore, mainly attributable to the use of the I section on the Pennsylvania Railroad, this form being little used in England, though common on the Continent of Europe.

Mr. Walter W. Scott writes to the *Mechanical Engineer* concerning an article copied by it from the *Railroad Gazette* describing the locomotive designed by Mr. George S. Strong, of Philadelphia, saying that it gives currency to a misstatement. Mr. Scott says:

"The locomotive designed by Mr. Geo. S. Strong, is fitted with Joy's patent valve gear, and gridiron valves designed by Mr. Strong; these are placed on the ends of the cylinders, so as to secure short ports; no longer, in fact, than the metal of cylinder-heads. The valve stems are vertical, and connect by means of bell-cranks with the Joy motion, which actuates them." The article in question did not originate with the *Railroad Gazette*, but was copied, with slight alterations, from the *National Car-Builder*."

We may observe that the article in question was not copied from the *National Car-Builder*, but originated with this paper, and that the engine in question is not fitted with Joy's valve gear, but with a motion invented by Mr. Geo. S. Strong, which, in the opinion of many well qualified to judge, is a distinct improvement upon Joy's gear. A perusal of United States patents Nos. 304,970 and 304,972 will enable those interested to form some idea of the essential features of this valve motion.

A well known Superintendent of Motive Power was visiting a machine shop, and was struck with the singular pale blue color of the floor of the shop. He was told that it was composed of the refuse of some soap works, which possessed no dumping ground and were consequently glad to give it away. "Then you get it for nothing!" exclaimed the Superintendent. "That is just what would suit my President."

The interest in the switching problem published in these pages nearly two months ago seems to have spread far and wide. We lately received a correct solution from a grocer in a remote village in Western Pennsylvania who had seen the problem in the *Coach Painters' Journal*.

#### Record of New Railroad Construction.

Information of the laying of track on new railroads is given in the present number of the *Railroad Gazette* as follows:

*Buena Vista*.—Track laid from Anderson, Ga., west to Ellenville, 10 miles.

*Cincinnati, Van Wert & Michigan*.—Extended south to Gravel Hills, O., 7 miles.

*Minneapolis, Lyndale & Minnetonka*.—A branch is completed from Minneapolis, Minn., south to the Falls of Minnehaha, 6 miles. Gauge, 3 ft.

*New York, Philadelphia & Norfolk*.—Extended from Pangoteague, Va., south to Franktown, 13 miles.

*Pittsburgh Junction*.—Completed across the city of Pittsburgh, 4½ miles.

*San Pete Valley*.—Extended from Wales, Utah, to Maroni, 5 miles. Gauge, 3 ft.

This is a total of 45½ miles of new railroad, making 2,665 miles reported to date for the current year. The total track reported laid to the corresponding date for 13 years past is as follows:

|           | Miles. |           | Miles. |
|-----------|--------|-----------|--------|
| 1864..... | 2,005  | 1877..... | 1,595  |
| 1865..... | 4,281  | 1878..... | 1,710  |
| 1866..... | 7,580  | 1879..... | 841    |
| 1867..... | 5,034  | 1880..... | 1,125  |
| 1868..... | 3,938  | 1881..... | 2,867  |
| 1869..... | 2,328  | 1882..... | 5,066  |
| 1870..... | 1,420  |           |        |

These statements include main track only, no account being taken of second tracks or other additional tracks or sidings.

#### The Philadelphia Electrical Exhibition.

The Union Switch & Signal Co. of Pittsburgh, Pa., contribute a very large collection of railroad signals, including its system of automatic block signaling, and several different methods of interlocking switches and signals. The exhibit is illuminated at night by numerous incandescent lamps on a system invented by Mr. J. F. Stanley, the company's electrician. The electric light was also shown as applied to the illumination of signals, and the results already obtained in this direction appear to be very promising.

The automatic block signaling apparatus used by this company was exhibited at the Exposition of Railway Appliances at Chicago last year, and was then described in these pages.\*

The rails are made use of as an electric conductor, forming what is termed a "track circuit." The presence of a train on a block section short-circuits the current, which passes through the last wheels and axle of the train, and so keeps the signals in its rear at danger until the train

\* See pages 440 and 505 of the *Railroad Gazette* of 1883.



has passed out of the block, and the electric current can again accomplish its full circuit through the track.

This system, while admirable in many respects, labors under the disadvantage that electricity does not give a sufficient amount of force to move large and substantial outdoor signals. In bad weather, when signals are most wanted, they are apt to become clogged by snow and ice, and even in the absence of these impediments operation of outdoor signals is liable to be impeded by high winds. It is obvious, moreover, that with our present command of the resources of electricity, this force is quite inadequate to deal with the movement of switches, which at large junctions is a laborious task for a strong man.

These considerations have led to the adoption of signals and switches moved by power, the application of the power being controlled by electricity. The first advances made by the Union Switch & Signal Co. in this direction were in the use of hydraulic power. The use of air under pressure has, however, proved more convenient, and after a laborious series of experiments, Mr. George Westinghouse, the President of the company, has produced a method of interlocking and working switches and signals in which compressed air furnishes the power, the air being admitted and discharged by suitable valves moved by electric currents, which also control the interlocking mechanism, insuring the safe working of the junction.

This system has been applied at the Wilkesburg Junction, near Pittsburgh, on the Pennsylvania Railroad, and a complete full-sized apparatus with switches, signals and electric interlocking frame and levers is shown in operation at Philadelphia.

Each switch is worked by an air cylinder and piston placed near it. Compressed air is supplied to each cylinder by pipes from a main reservoir and ordinary Westinghouse air pump located near the signal box, or at any convenient point. The pump is worked by steam supplied by a small stationary boiler. To effect economy, the pump may supply air to several different adjacent junctions, as the air pipes can be laid a distance of several miles, the loss of pressure through leakage and friction being insufficient to interfere with the working of the apparatus.

The pistons of the air cylinder are connected to the switch and to the switch-lock in such a manner that a single stroke of the piston first unlocks the piston, then shifts it and then locks it again in its fresh position. One movement of the signalman's lever causes the piston to make a complete stroke, and therefore accomplishes at one stroke the work that requires three movements of Saxby & Farmer levers. In this system one lever locks the switch and another moves it. Therefore, before a locked switch can be moved the locking lever must be shifted by the signalman so as to unlock the switch; then the switch lever can be moved and the switch shifted. The locking lever is then replaced in its first position and the operation is complete. In a large signal box at a busy junction, where some twenty or thirty sets of switches have to be constantly shifted, these three movements take some time, and require no small amount of strength and endurance on the part of the signalman. In the electro-pneumatic method these three movements are superseded by one movement of a small lever some six inches long. This lever controls an electric current which operates valves on the air cylinder, admitting or releasing—as the case may be—the compressed air which moves the piston and actuates the switch.

The interlocking apparatus is very small and compact, measuring for a single track grade crossing with throw-off switches about 24 in. cube. The switches and signals are interlocked with one another both by mechanical and electrical means, in order to guard thoroughly against a clear signal being given when a switch is improperly or imperfectly set. The means by which this end is attained cannot be fully explained here. The method by which the danger of an accidental obstruction to the complete movement of the switch is guarded against is, however, very simple and easily understood.

When the piston in the air cylinder comes to the end of its stroke it strikes against an electric contact piece in the cylinder head and this completes an electric circuit. The lever moving the signal is locked until this circuit is completed. Therefore the clear signal cannot be given should a stone or any hard substance prevent the point rail fitting snugly to the stock rail and thus prevent the piston completing its stroke.

While the switch is in a dangerous position the clear signal cannot be given. It is obvious that this method enables switches to be operated at a considerable distance from the signalman, as no long line of rods has to be moved with the risk of springing and bending. It is, however, advisable that the signalman should be able to see all the switches he controls.

Methods of ringing bells at highway crossings are also shown. The bells are rung by a track circuit, the current passing up one line of rails and down another being short circuited by any train approaching the crossing from either direction. The method of operation differs little in principle from that used in the automatic electric block system.

A very simple form of block system is also exhibited, we believe, for the first time. It consists of a semaphore signal, moved by a lever working in a slotted table. This lever can be situated at any convenient distance from the signal post, and, therefore, the signal can be placed where it can be best seen, and not hidden from view by the roof of the station building, as is sometimes the case.

The lever does not operate the signal directly, but through the medium of a lever having arms of very unequal length. The signal rod is coupled to the fulcrum, and the rod from the signalman's lever is coupled to the two ends of the lever.

It is obvious that the principal part of the strain for moving the signal is transmitted through the end of the lever which is nearest the fulcrum. At this point the connection is made in the usual manner with a pin. At the other end of the lever is a catch, which is held in position by the passage of an electric current. The signal, being weighted to fly to danger, assumes this position whenever the electric current is interrupted, as the end of the lever, being released, flies up, and the signalman's lever has no further control of the signal. This signal is worked with a track circuit, and the presence of a train on the block short-circuits the current, and causes the signal to fly to danger. Therefore, while a train is on the block section, the signalman has no control over the signal, and cannot put it to safety. It remains at danger until the train leaves the block and the circuit is restored. The catch then becomes operative, and the signalman can place the signal at safety again.

It is therefore a block system without any telegraph instruments, and the electric current simply acts as a check on the signalman, and prevents a clear signal being given until the line is clear. This method of signaling seems especially applicable where it is desired to block one or two sections of line only, for instance a tunnel, or a succession of short curves in rock cuts, where the engineer can only see a few yards ahead. The ordinary system of block signaling requires a signal box and block telegraph instruments at each end of the block. With this system but one signal box appears to be absolutely necessary. Many accidents have occurred in block signaling through mistakes as to the exact number of bells rung, etc., and it would appear that this method eliminates that source of error. Should lengthened experience show that the track circuit is thoroughly trustworthy in all kinds of weather and under all conditions, this new method of block signaling must be regarded as a distinct improvement, as the signal is absolutely held to danger by the train, instead of by the signalman, who on the present system sometimes forgets that a train is still on the section.

The Union Switch & Signal Co. also exhibits a Saxby & Farmer locking frame fitted with an electric lock for preventing the movement of switches during the passage of the train over the block section in which the switches are situated. This is an important safeguard, and can only be secured by electrical means. When once a train has entered the block at station A, the switches at station B are immovable until the train has completely passed beyond B.

When a train enters the section at A an electrical circuit is made which locks the switch-lock lever at B, a small detent being dropped into a notch on a revolving tumbler which locks the spring catch rod. This small appliance is easily applied to existing signals, and can be worked by a two-cell battery.

The Wharton Switch & Signal Co. exhibits an application of the Hall electric signal to a grade crossing. The signals are operated by electricity, and fly to danger when an electric circuit is broken by the passage of a train. The rails are not used as a conductor, but the train is made to break the circuit by means of contact pieces, which are placed near the rails, and struck by the wheels of an advancing train. The signals are interlocked electrically in what appears to be a very simple and effective manner. We believe the inventor of these signals was the first to devise any practical method of automatic electric block signaling, and the present exhibit represents the fruit of some twenty years' labors in this field.

The exhibit will well repay careful examination, and on a future occasion we hope to describe it more fully.

The Electric Cab Signal Co. shows a method of electric signaling by which a bell is sounded in the engineer's cab. Visible signals are thus rendered unnecessary. The apparatus is fitted up in the cab of the Shaw engine, and its operation is also clearly shown by a working model. Want of space prevents a fuller description here.

In this age of progress, events that occurred only a few years ago are already matters of history. Though the telephone is of recent invention, its history is already as obscure as the siege of Troy, or the object of the Pyramids. It is not therefore surprising that the exhibition contains many historical collections of early efforts in the direction of dynamos, telephones, arc lights, telegraph instruments, etc.

Messrs. Pratt & Whitney exhibit a most interesting collection of standard gauges, screws, etc., and improved patterns of taps, etc. Their most important exhibit is, however, a very delicate and accurate measuring instrument, the joint invention of Professor Rogers and Mr. George M. Bond. The latter gentleman is in charge of the exhibit, and most courteously shows his visitors with what ease and rapidity a variation of  $\frac{1}{1000}$  of an inch can be detected in a standard measure. The subject of accurate standards of size is of the utmost importance to the mechanical industries of this country, and we hope to describe this exhibit, the Rogers-Bond universal comparator, more fully in a future issue.

The Pratt & Whitney Co. contribute a very interesting collection of standard gauges, screws and taps. Several specimens of their fixed caliper gauges were shown in different stages of manufacture. These gauges are of steel, drop-forged, and are remarkably fine pieces of workmanship.

Some taper reamers were remarkable for having the cutting edges all backed off in a uniform curve, thus giving an equal distribution of work between each cutting edge. This of course tends to insure good work and prolongs the life of the reamers. It is said that one of these reamers has been used on 10,000 holes and is still giving the same diameter. Specimens of work showed the interior surface to be very smooth.

Some special taps of a pattern made originally for the Baldwin Locomotive Works were exhibited. These taps are of ordinary length and diameter and are arranged as usual in sets of three. The taper of these taps differs, however, from the ordinary arrangement. The taps are tapered in such a manner that the work of forming the base of the thread is equally shared by each individual cutting edge of the tap. The taps are cut to the United States standard thread.

Several standard screw gauges, male and female, cut to this thread, are also shown. These gauges are not intended to cut threads, but to afford a means of testing the accuracy of taps and dies. It is to be regretted that in so many shops the importance of this subject is so little recognized, and that inaccurate and irregular sizes of screws and forms of thread continue to be used. Many large railroad shops prefer to make their own taps, but in order to insure accuracy and interchangeability it is absolutely necessary that a standard of comparison should be used. That is to say, each tap made should be tried by the standard, and if found inaccurate, either corrected or thrown away. The old-fashioned method was to make one tap, which we may term No. 1; No. 2 was then made to resemble No. 1, No. 3 to resemble No. 2, and so on. In course of time No. 1 would certainly not recognize his descendants, each generation of taps having developed individual characteristics or departures from the original stock. It is no uncommon sight to find the unmechanical and barbarous V thread still in use in a shop having many mechanical refinements, and possessing the newest appliances for turning out work accurately and cheaply. This is greatly to be regretted.

#### Foreign Railroad Notes.

The railroads of Java are especially prosperous, being able to declare a dividend of  $8\frac{1}{2}\%$  per cent., and pay off part of their bonded debt at the same time. They probably charge very high rates, since the receipts per train mile on the main line amount to nearly five dollars! Unfortunately we have no tonnage statistics to show how they earn their five dollars. What figures we have for this line, which runs from Samarang to Vorstenlanden, are quite curious in several respects:

|                              |             |
|------------------------------|-------------|
| Length (miles).....          | 125         |
| Cost of construction.....    | \$7,746,000 |
| Cost of operation.....       | 62,000      |
| Earnings { Passenger.....    | 208,000     |
| Freight, etc.....            | 1,041,000   |
| Total.....                   | 1,249,000   |
| Expenses.....                | 405,000     |
| Per cent of earnings.....    | 32.5        |
| Earnings per mile.....       | \$10,000    |
| Expenses " ".....            | 3,250       |
| Earnings per train mile..... | 480         |
| Expenses " ".....            | 1.56        |

A profit of \$3.24 per train mile is a very pretty thing to have. The Pennsylvania Railroad last year had to put up with 59 cents, while the New York Central had  $57\frac{1}{2}\%$  cents, the Erie 48, the New York, New Haven & Hartford 67, the Lake Shore 71, the Chicago & Alton 86, and the Chicago, Burlington & Quincy \$1.12.

The affairs of the Great Russian Railroad Company have been recently subjected to a searching investigation. The result has not yet been officially announced, but it is believed that it will show that the Russian Government has been cheated out of more than ten million dollars. Influential persons whose names were involved have made strong efforts to have the report officially denied. The complete failure of their efforts has tended to confirm it.

In the Russian campaign against the Turcomans in 1881 much use was made of a very narrow gauge horse railroad built to supply the army with food and water. The gauge was 19.7 in.; the rails, weighing only 14 lbs. to the yard, seem to have been laid directly upon the ground, which was naturally level. In the recent French campaign in Tunis there were far more elaborate arrangements of the same kind. The gauge was  $23\frac{1}{2}$  in. and the rails correspondingly heavier. There were frequent grades of 1 in 10, and considerable swampy ground to be crossed. In spite of these difficulties, the road was found available not merely for the transport of supplies, as in Russia, but for guns and munitions of war, and even for the sick and wounded. The efficient traction power of a horse on this road was estimated to be more than twelve times as great as on the regular roads of the country. Since the conclusion of the war the line has been kept open for the ordinary traffic in time of peace. Although horses are still used for motive power, it is organized like a steam railroad; and the express trains, in spite of the heavy grades, make the distance of about 40 miles in five hours.

The statistics of street railroads in the year 1883 for England and Germany were as follows:

|                         | England.    | Germany.    |
|-------------------------|-------------|-------------|
| Mileage.....            | 675         | 564         |
| Number of horses.....   | 20,132      | 8,500       |
| " " engines.....        | 117         | 73          |
| " " cars.....           | 2,819       | 2,125       |
| Passengers carried..... | 209,000,000 | 170,000,000 |

England carries more passengers per mile than Germany, but very much fewer per horse. It is hard to explain why the difference in the number of horses should be so out of proportion to the other figures; though a large number of one-horse cars are employed in Germany, which will help to account for it.

The capital invested in street railroads in Germany amounts to somewhat under \$25,000,000. The investment generally pays extremely well. The Berlin Horse Railroad, which does almost as large a business as all the other com-



panies put together, since it last year carried 70,000,000 passengers—earned a dividend in that year of 9% per cent.

Horse railroads are an old story; a camel railroad has the merit of novelty. It is announced that camels are to be employed as the motive power on the last section of the railroad recently built by Russia through the Trans-Caspian desert, toward India.

Asia Minor has been almost without railroads, having only three or four local ones near the west coast. Another has recently been built in the extreme southeast, starting from Mersina, opposite Cyprus, and running 42 miles up the valley to Tarsus and Adana, where it terminates for the present. But it is believed by some that this is the natural beginning of a railroad line from the Mediterranean to the Persian Gulf, and a link in the overland route from Constantinople southeastward. Meantime the prospects of immediate success are good. The cost, including equipment, has been less than \$40,000 per mile. The road connects Mersina, a harbor of some importance in international trade, with a country now almost unknown except for its associations with Paul or with Cleopatra, but rich in the greatest variety of natural products—wheat and corn, grapes and oranges, cotton and camels-hair, dyestuffs and timber. Adana is the chief town of this district—a place of 60,000 inhabitants, but hitherto quite shut out from the world by the high price of transportation, which was up to 25 cents per ton per mile.

According to an official report presented last May, Brazil had at that time 3,500 miles of railroad in operation, an increase of some 500 miles in the course of a year, and 1,500 miles more in actual construction. About a quarter of these railroads are owned by government, and as many more have government guarantee of interest, usually at the rate of 7 per cent.

#### Notes at the Louisville & Nashville Railroad Shops.

The principal shops of this line are situated at Louisville and are so extensive and possessed of so many facilities for turning out work that the company makes many of its own locomotives.

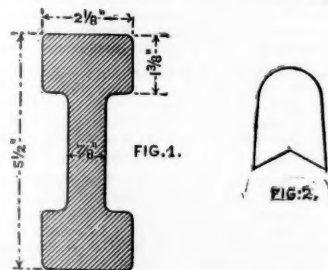
The eccentric sheaves are made solid instead of in two halves, and are pressed on the main driving axle, which is turned so as to be largest in diameter where the eccentrics bed. The eccentric sheaves were formerly bored on a lathe, but are now bored by a boring bar carrying eight cutters. Two sets of cutters are used in succession, the first set boring out the sheave roughly to size, and the second set finishing it to the proper dimension. The work can thus be done very expeditiously, 16 eccentrics having been bored in 20 hours. The eccentric is first roughed with four cutters, and then the four finishing cutters are inserted.

A special chuck is used for holding the eccentrics while being bored. The eccentric is prevented from turning by a lug cast on one side, and is held or centred by three screws placed radially 120 degrees apart. The first eccentric of a batch is correctly marked off and centred. All three screws are then tightened, and the eccentric bored. Two of the screws being kept fast in boring the rest of the batch, each eccentric is gripped in practically the same position, the only difference being due to the roughness of the casting.

The boring bar is used for many kinds of work generally done upon the slotting or shaping machine. Many sweeps are cut out on a powerful drilling machine, with a boring bar steadied in a suitable rest on the foot of the drill press.

A neat little attachment is used at these shops for drilling holes at any angle from the vertical. The drill spindle is carried by a swiveling plate which can be turned to any angle, and is driven by bevel gearing from a spindle which is attached to the drill socket of the lathe. The whole affair is very compact and quite portable, and can be used with any ordinary drill press when required, and when done with can be detached. Thus any ordinary drill can be made capable of drilling holes at an angle without incurring the expense of purchasing an entirely new tool.

The passenger engine coupling-rods are made of H section, and are deepest in the centre, where the area of the



cross section is no less than  $8\frac{1}{4}$  square inches. The form adopted is shown in the accompanying sketch, Fig. 1.

The rods, crank-pins and other parts of the engine are made of carefully selected wrought iron scrap at the company's works at Louisville. All engine axles and some of the car axles are thus made. The engine frames are also made of carefully piled and selected scrap. There is no especial novelty in the method adopted of making the frames, but great pains are taken to insure sound welds and quality is not sacrificed to the desire to turn out a large amount of work in the shortest possible time.

The coupling-links for freight cars are made and welded

in dies in three successive operations under the steam hammer. The round iron for the links is bought cut to length, and as a first operation is bent in the middle so as to assume a U form. It is then placed in a pair of dies that bend the upper ends of the U toward and alongside one another. These ends are then brought to a welding heat, and welded in a third pair of dies, making a very smooth and neat job. The welding being effected more quickly than by hand, and under considerable pressure, the weld is almost always sound, and stands well, while the cost is only  $\frac{1}{4}$  cent per pound. About 700 links can be bent in a day's work of 10 hours, while about 375 can be put through the second process, scarfing, in that time. The coupling-pins for freight cars are headed and pointed under dies under the steam hammer.

The follower plates,  $1\frac{1}{2}$  in. thick, are heated to a cherry-red, and a hole  $1\frac{1}{2}$  in. diameter punched by an hydraulic press. The engine spring and equalizer links are punched hot under a steam hammer, the links being confined in cast-iron dies, and a steel punch, shaped in side elevation as shown in the accompanying sketch, Fig. 2, being forced through by a steam hammer.

Every engine before going into service after having received heavy repairs is carefully inspected to make certain that a proper amount of clearance is left both above and below the axle boxes, and that the engine stands level on track, that is to say, that the engine is at the same height from the surface of the rails at the four corners. This inspection is always performed by the Master Mechanic in person, and is not delegated to any other person.

An exhaust fan is used to remove the sawdust from the planing-mill, which furnishes enough fuel for the whole works. The planing-mill is a fine two-story building, the shafting being all overhead. Underground shafting, which in many respects is preferable for wood-working machinery, was tried, but it was found that the belts sucked down dust, etc., which was not easily removed.

The express cars have no end platforms, the object being to deprive train robbers of any basis of operation. The cars, however, are provided with bumper beams which standing beyond the body would afford ample foothold to determined men assisted by the ladder rounds and hand rails on the ends of the cars.

#### TECHNICAL.

##### Car Notes.

The Muskegon Car & Engine Works in Muskegon, Mich., have enough orders on hand to keep the car shops busy for three months to come. They have also a large contract for repair work for the Chicago & West Michigan road.

The Receiver of the Northwestern Car & Manufacturing Co. at Stillwater, Minn., reports that the total assets are valued at \$4,372,779, including the shops and plant. The liabilities, including \$500,000 guaranteed preferred stock, but not common stock, are \$3,406,359, showing a surplus of \$966,420. A large part of the assets consists of materials and work in progress and of accounts, notes, etc., which it will take time to realize.

##### Bridge Notes.

Contracts for the Northern Pacific bridge across St. Louis Bay, between Duluth, Minn., and Superior, Wis., have been let to the Detroit Bridge & Iron Co. for the iron truss spans; Winston Brothers, of Minneapolis, Minn., for the wooden truss work, and Saulspagh & Co., of Rock Island, Ill., for the piling and piers. The bridge will have an iron draw-span 240 ft. long, one fixed span of iron, 160 ft. long, and 4,290 ft. of pile and wooden truss bridging.

The Union Bridge Co. has the contract for the new Wisconsin Central bridge over the St. Croix River, at Stillwater, Minn., which will be 2,340 ft. long, in all including about 900 ft. of iron trestle.

##### Iron Notes.

Martel Furnace at St. Ignace, Mich., has gone out of blast, after a run of four months only.

The first mortgage bondholders of the Vulcan Iron Works, of South St. Louis, held a secret meeting on Sept. 18, touching the foreclosure of their mortgage. Some time ago these works issued \$1,000,000 of bonds at 7 per cent. interest, payable semi-annually. When the Vulcan Works were consolidated with large iron and coal interests under the name of the St. Louis Ore & Steel Co., the latter assumed these bonds. Part of the interest due on them last March was paid, but some of the coupons were not presented and the interest on them remains unpaid. Since that time the Ore & Steel Co. has passed into the hands of a receiver, and, in the opinion of the bond owners, the company not being able to pay the overdue interest, they decided to foreclose the mortgage, and will take immediate steps with that view and buy in the works when they are sold.—*Iron Age*.

The O'Leary Steam Forge Works in Chicago are to be enlarged, and more hammers will be added to the plant.

A syndicate, including several large iron manufacturers, has been formed to test the new Henderson process of making steel. The inventor claims that by his method, which is an open hearth process, steel can be made which is better than Bessemer steel and more cheaply made. An experimental furnace has been built at Bellefonte, Pa., where steel has been made and tests will be conducted.

##### Manufacturing and Business Notes.

The Cummer Engine Co. in Cleveland, O., has orders for a number of stationary engines, including one of 300 horsepower for the repair shops at Frankfort, N. Y., on the New York, West Shore & Buffalo road.

The Leetonia Tool Co. in Leetonia, O., made an assignment on Sept. 17. It is stated that the assets will realize enough to meet all the liabilities, if time is given.

The Lake Shore Tube Works in Cleveland, O., are building a number of electric light towers. Recently 80 of these towers were completed for Detroit, and others have been contracted for.

O. W. Child & Co., No. 50 Broadway, New York, have been appointed sales agents for the Broomhall Safety Stop-block which was illustrated in the *Railroad Gazette* of Aug. 1 last.

##### Filtration of Lubricating Oil.

A correspondent of the *Scientific American* says that he has adopted the following method of cleaning sperm oil so

as to use it over again: Take a common wash boiler, put a faucet in the bottom, solder on tin lugs about half way down inside, and make a wooden frame that will go inside and rest on the lugs. Tack on this frame for the bottom four thicknesses of coarse bagging; on that spread loose four thicknesses of cheese cloth, then sprinkle over the cloth coarse soft wood sawdust, then four thicknesses of cheese cloth, then sawdust again, for three successive times, with four thicknesses of cheese cloth on the top. Pour the oil into this frame within the boiler, and it will filter all the dirt out. It will become colored by constant use and filtering, but it will be free from dirt. By using this filter I have made ten gallons of sperm oil do the lubrication that would have taken thirty gallons.

#### THE SCRAP HEAP

##### A Practical Car-Coupler.

Mr. Charles K. Cordrey, of Bellefontaine, O., is in attendance upon the car-coupler investigation, not because he has a coupler, but because he has what he thinks will obviate the necessity of adopting any new one until that happy time shall come when all can agree. He has a device for moving and adjusting both the link and the pin of ordinary couplings, and it is ingenious. We cannot undertake to describe it, especially when Mr. Cordrey, in a moment of inspiration, has set forth its merits upon a circular in glowing numbers, which must be read to be appreciated.

The "Corduroy" attachment, for coupling the cars, Does the work right without any scars.

The brakeman must set the pin we say, Straight up and down, and then step away.

He pulls the lever to raise the link, And the coupling is made quick as a wink.

When the pin gets tight, and you must remove it, Now try my plan, and that will prove it.

Now slack the chain, then jerk the lever, And the pin comes out as nice as ever.

Now, gentlemen, sirs, hear the end of my story, If you try to save your men, you may yet get to glory.

But if you refuse to do so, you know, The Judge will give you a pass to go below.

Mr. Cordrey has also invented a simple device for lifting the coupling bars of the locomotives. It looks sensible. Inventors and poets are often thought to be impracticable and visionary, but this man is level-headed. He takes his models in a gripsack, and goes about as a missionary of the gospel of humanity, and, if railroad men would save both life and money, they should call upon him either at the rooms of the Railroad Commissioners, or at No. 5 Allston street.—*Boston Advertiser*, Sept. 27.

##### A Generous Corporation.

Railroad Superintendent—You appear to have been a little hurt in this collision, my friend.

Maimed Passenger—I have lost both arms and one leg.

"Indeed! What is your regular business?"

"I am at present out of work."

"Ah! Well, with three limbs gone, you can easily excite sympathy and make lots of money at begging, but we won't charge you anything extra."—*Philadelphia Call*.

##### Too Scientific.

The other morning in Philadelphia, at a session of the American Association, the reading of the first paper was about to proceed, so the story goes, on the "Nervous System of the Flea," when a member jumped up and moved an adjournment. Unanimously carried. Thermometer, 96°.—*Scientific American*.

##### Frightening Rats and Mice.

The latest issue of the *Official Gazette* of the United States Patent Office contains some amusing patents. One mite inglorious Nelson, heedless of his country's fame, patents the figure of a cat to frighten rats and mice. The body is to be covered with luminous paint, "the eye having a coating of phosphorus, so as to shine out more brilliantly than the body."

This is a step in the right direction, and doubtless we shall soon have patent illuminated snakes to frighten men who drink whisky, and illuminated pictures of Canada to deter bank cashiers, and representations of trains of cars to hinder street-car drivers from testing the colliding powers of locomotives.

We forgot to add that the patentee proposes to perfume his cat, "so as to be obnoxious to rats, mice, etc." Imagination shudders at the idea of perfumed snakes!

##### Remarkable Accident.

The effects of a run-off on a small English branch line were mitigated in a singular manner on a recent occasion. The *Engineer* says: "The escape of the many passengers may be said to have been little short of miraculous. The train was composed of four passenger carriages, a carriage truck, horse-box, and brake. While running at the rate of about 35 miles per hour, the engine left the line, tore up the metals for a distance of about 60 yards, plunged over an embankment to the right, and fell some 12 ft. into a dyke. The engine-driver and stoker, after turning off the steam, fell with it into the dyke. They were much shaken, but received no serious injuries. The carriage-truck and horse-box attached to the engine fell to the left and were considerably damaged. The end of a first-class compartment and an adjoining second class carriage were also thrown over. The permanent way was torn up so that one of the rails inserted itself between the wheels and the body of the carriage, and protruded 8 ft. on the other side. Another rail was found standing up perpendicularly between two carriages. The two third-class carriages, with the brake-van, did not leave the line, having been brought to a standstill by the action of the Westinghouse brake, which, although not attached to the engine, was charged with air. At the moment the accident occurred the guard, Gilbey, was sitting in the baggage car looking out of the window, with his hand in close proximity to the tap of the automatic brake. The jerk which he received knocked his hand against the tap, and this instantly applied the brake to all the carriages to which it was fitted. There is no doubt that to this circumstance is due the fact that the carriages did not become totally wrecked, and that not a life was lost."

##### A Railroad Ghost Story.

On or about the middle of February, 18—, as train No. 9 was standing at the wood-pile getting wood, the engineer had just got through oiling around and put the can upon the engine and stepped out upon the wood rack, he and his fireman were sitting down spinning yarns while the brakeman and conductor were finishing wooding up, when all of a sudden the whistle gave three shrieks that stopped further proceedings. The engineer and fireman jumped upon the engine, closely followed by conductor and brakeman, to find



out what was the matter, but could not see a thing. Everything was as it had been left, when, at last the conductor turned around, and there on the wood-pile they had just left he saw a supernatural being in the form of a man dressed in blood-red tight suit and a skull cap on and something projecting from his head. From the description given by the conductor he must have been his royal highness the devil or one of his agents, if he has any. No sooner than he found he was discovered, he commenced getting off the wood-pile and putting out for the timber, closely followed by fireman, conductor and two brakemen. One of the brakemen, a better runner than the rest, got so close that he said he could almost touch it, when it seemed to dart away again, and all of a sudden it disappeared in the timber.

After they had returned to the engine they all sat down together and the whole affair was discussed. The engineer and conductor being the most superstitious parties among the crowd, came to the conclusion that something was going to happen, and that each whistle called for a man, and strange to say not one year from that day three of the same men that were at the wood pile that memorable night had passed away, the engineer being first. In getting off his engine whilst in motion his foot slipped and the first car ran over him and killed him; one of the brakemen fell from the top of the train while running, he being slightly under the influence of liquor, and about three months after the conductor, being a slick kind of chap, waited till the train pulled by the platform, caught at the front steps of his caboose, missed his footing, and underneath he went, thereby handing in his checks and making the third man whom the whistle denoted. The other brakeman left the country.—*Locomotive Engineers' Monthly Journal.*

We much regret to add that the narrator has adopted the very unusual course of not vouching for the truth of the above. He must be a relative of the man who wouldn't imperil his soul for the sake of one miserable duck.

#### The Patrid Remains.

There was considerable excitement for a short time at the Boston & Albany Railroad station in Westfield one morning this week, when a stray trunk turned up with no marks to show its destination. After lying in the baggage-room a few hours the stench from it became so intolerable that a council of the railroad people was held as to what should be done with it. Visions of the dismembered body of some unfortunate man or fair young woman floated through every mind. Permission was received to open the trunk, and with fear and horror the lock was forced and the cover raised. The fumes that arose drove the operators and spectators from the room. Finally the brave baggage-master made a rally and threw off the top layer; but, finding no body, with one hand to his nose investigated further. The cause of all the trouble was found in a lot of huckleberries that had fermented, and a quantity of cooked corned beef and other eatables which had spoiled from the heat and long keeping. The trunk was hastily closed and carried where it would no longer taint the air about the depot, and it is said that the chief participants have since been carrying limburger cheese about for disinfecting purposes. The trunk, it appears, should have been sent from Palmer to some place in Connecticut, but somehow got astray to alarm and disgust Westfield railroad men.—*Springfield (Mass.) Republican.*

#### On the Boston Train.

"Conductor, will you please tell me at what time this train will reach Boston?"  
"Well, really, madam, I cannot say," he replied, punching her ticket.  
"Isn't it a little singular, sir," she asked, somewhat surprised, "that you cannot give me this information?"  
"Not at all singular. The train may never reach Boston, but it is due there at 3:30."  
The young woman sank back in her seat mortified that she, a Boston girl, should have made such a stupid mistake.—*New York Sun.*

#### An Unsafe Test of Age.

A woman entered a Third Avenue car yesterday with a little girl, apparently about nine or ten years old. The child's skirts were not particularly long, and it had a healthy, buxom appearance. When the conductor came along for the fare the woman handed him five cents, and the little girl drew her limbs up closer under her skirts.  
"Fare for the child," said the conductor, as he continued holding out his hand.  
"Fare for the child, shure, an' she not five years old."  
"But she is, madam; she looks more like ten."  
"An' how d'ye make that out?"  
"Why, by her looks," cried the conductor, who was growing impatient.  
"D'ye hear him," and the old woman gazed triumphantly around the car; "he's judgin' the faymable by her looks. Nonsense, man, begone wid ye." And the passengers smiled and the conductor rang up one fare.—*New York Herald.*

#### Trial Trip of the Boston & Albany Dining Car.

The Boston & Albany Railroad Co. ran its new dining-room car from this city to Boston on the train leaving here at 12:49 o'clock yesterday afternoon, for the delectation of a small party of guests whom Assistant General Superintendent Gallup had invited to take a "light lunch" with him. Among the company were H. S. Hyde, Treasurer of the Wason Car Co.; Ex-Mayor Powers, Medical Examiner Breck, C. A. Nichols, R. F. Hawkins, Division-Superintendent Graves, A. P. Hanson, of Boston and the Passenger Department; B. S. Gardner, of the *Pathfinder*, with newspaper men from the Hub and heart of the Commonwealth, all of whom Col. Mann, of the Boudoir Car Co., did his utmost to entertain. The variety of the menu, notable for the excellence of the cooking, the elegance of the immediate surroundings, brightened by the glimpses of autumnal foliage which came in through the windows, and intensified by the fact that everything was brand-new, not to mention the promptness of the service, combined to make the whole affair, as Mr. Gallup suggested, a decided innovation for New England. The car rides very steadily, in part, it is claimed, because of the lightness of the boudoir roof, nearly all the weight being at the bottom, and the appointments are all that can be desired except in the way of ventilation, which can be improved, Mr. Hyde thinks, by enlarging the lower registers. The dinner lasted all the way from Springfield to Boston, being served under the direction of a finely uniformed conductor, who has the characteristics of an exceedingly well-fed man. Col. Mann made a little speech proposing Mr. Gallup's health, and expressing his satisfaction that the Boston & Albany Railroad Co. have been so ready to experiment in the line of introducing his boudoir cars, and that now they have taken up the dinner-car system, while some other companies have been adverse to trying anything of the kind. He said that almost everything will depend on the steward in regard to the success of the enterprise, and that in securing a man recommended by the Somerset Club of Boston, a graduate of Young's and the Vendome, he hoped he had made the best possible selection. Mr. Hyde also said a few words by way of congratulation that the company have added the dining-cars to the many attractions of this line of travel, and said that the project ought to

succeed between New York and Boston if it can anywhere. The party broke up in the Boston depot with the feeling that if the railroad's idea of a light lunch had been exemplified, it would be very pleasant to be on hand when the corporation dispense a good square meal. The cars begin running regularly to-day, as already announced, and the bill of fare will show that more can be expected for the money than can be had at a first-class city restaurant.—*Springfield (Mass.) Republican, Sept. 30.*

#### An Unsuccessful Inventor.

A novel way of defrauding a railway company comes from England. A hawker had endeavored to come from the Doncaster races to Sheffield without a ticket, and in order to evade the ticket collector he lay on the seat whilst six of his companions sat upon him. He was fined £1.

#### The Hindoo as a Trainman.

The following is a letter, signed "Diogenes," which appears in the *Indian Railway Service Gazette*. In explanation, it should be said that the Indian railroads are employing more and more natives, who work for very low wages, and that they are thus elbowing out the European railroad employes, who at first were indispensable for working the railroads. The Europeans wish the better places in the service to be reserved for themselves and their children, and they take pains to point out the shortcomings of the native station agents, engineers, guards, etc. The tone of "Diogenes" is pretty good evidence that, if a white man, he is a Eurasian—born in India and brought up among natives, and not among Europeans—very likely the child of a native mother by a European father. However that may be, his account of the discipline of the "Baboo guard" is sufficiently amusing:

"Having missed the mail train a few days ago, I was obliged to travel in the goods brake-van which the station-master very kindly allowed me. After all was right and line clear received, the train started. I got on very nicely for the first few stations and entered into the following conversation with the guard: 'I say, Baboo.' 'Yes, sar.' 'You are very sharp at stations much like the mail, only a few minutes detention.' 'Yes, sar; not very much work got these small stations, therefore line clear given very sharp.' 'How is that, Baboo, you don't have much to say to the station-masters.' 'They are not my friends, sar, newly they coming these stations. If they be my friends I will stop one few minutes and smoke hookah.' 'Are you long on this line, Baboo?' 'Yes, sar, I am now about five years.' 'Getting good pay, Baboo?' 'What pay, sar, giving very small, not enough to live, one small family.' 'Have you many children, Baboo?' 'No, sar, I got only seven.' 'By-the-by, seven children?' 'Yes, sar, besides I got, sar, my wife's mother and sister, my brother and his wife and three children.' 'All supported on your pay?' 'Yes, sar, very small family, indeed, what can do, sar. Your kind gentleman must keep favor.'

"Arrived at the next station, Baboo meets his friend the station-master. 'How are you my friend, very long time I never did saw you, being going any where to perform any ceremony.' 'No, my friend, traffic make very slack, therefore I never come.' 'Sit down; I will order for hookah and pawn.' Baboo sits down, has a smoke and some pawn. 'Train detained 15 minutes beyond time, give line clear; I will go.' 'What your hurry, my friend, long time I no see you, take one nother smoke, a few more draws give line clear.' 'I got too many friends to meet; they will also ask me to take hookah and pawn, therefore must go and oblige. What time I book?' 'You must know, what I can tell must book right time.' 'I say, Baboo, you have booked right time, will the driver accept of that line clear?' 'Yes, sar, he very good gentleman, he no grumble, he will make up the time, he one first-class driver, he no one coal-saving driver; he always telling time is money and he make too much running.' 'I think you are really very lucky, Baboo, to have a driver to make up the time you waste at stations talking to your friends.' 'What, sar, only one two minutes I make smoking and talking.'

"As we were getting along the detentions at some of the stations began to increase in shunting, putting in and taking out packages at some stations, and meeting intimate station master friends at others, I thought the Baboo was imposing on the driver, for as he kept making up the time the Baboo lost it again. I saw the driver talk to the Baboo and he wanted to know the cause of such detentions. 'What can I do, sar; too much work got putting in and taking out packages making delay; look sharp, Baboo, or I will not make up one minute.'

"What I have experienced for one trip in a goods train I can fully see if it were not for the drivers mostly all trains would not keep time. I think it would be far the best and cheaper in the long run to employ Europeans or Eurasians as guards, for such delays would not occur, and the wear and tear to machinery and rolling stock would not be so great, for an excess of speed must exceed for to pull up the unnecessary delays caused by Baboo guards."

## General Railroad News.

### MEETINGS AND ANNOUNCEMENTS.

#### Meetings.

Meetings of the stockholders of railroad companies will be held as follows:  
*Chicago & Eastern Illinois*, annual meeting, at the office in Chicago, Oct. 7, at noon.  
*Evansville & Terre Haute*, annual meeting, in Evansville, Ind., Oct. 20.  
*Lake Erie & Western*, annual meeting, at the office in Bloomington, Ill., Oct. 8.  
*Michigan & Ohio*, annual meeting, at the office in Toledo, O., Oct. 8.  
*Minneapolis & St. Louis*, annual meeting, at the office in Minneapolis, Minn., Oct. 7.  
*New York & New England*, special meeting, at the office in Boston, Oct. 7.  
*Ohio & Mississippi*, annual meeting, at the office in Cincinnati, Oct. 9.  
*Rochester & Pittsburgh*, annual meeting, at the office, No. 20, Nassau street, New York, Nov. 12.  
*Western Union Telegraph*, annual meeting, at the office in New York, Oct. 8.

#### Dividends.

Dividends upon the capital stocks of railroad companies have been declared as follows:  
*Delaware, Lackawanna & Western*, 2 per cent., quarterly, payable Oct. 20. Transfer books close Oct. 2.  
*European & North American* (leased to Maine Central), 2½ per cent., semi-annual, payable Oct. 1.  
*Housatonic*, 2 per cent., quarterly, on the preferred stock, payable Oct. 15.  
*Lake Shore & Michigan Southern*, 1½ per cent., quarterly, payable Nov. 1. Transfer books close Sept. 30.  
*Pittsburgh, Fort Wayne & Chicago* (leased to Pennsylvania Co.), 1½ per cent., quarterly, payable Oct. 1 on special stock and Oct. 7 on regular stock.

*United New Jersey* (leased to Pennsylvania Railroad Co.), 2½ per cent., quarterly, payable Oct. 10.  
*Vermont & Massachusetts* (leased to Fitchburg Co.), 3 per cent., semi-annual, payable Oct. 6.

#### Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be held as follows:  
*New England Road-Masters' Association*, annual convention, at White River Junction, Vt., on Wednesday, Oct. 8. A full programme and announcements were published in the number for Sept. 5.  
*General Time Convention*, fall meeting, at the Continental Hotel, Philadelphia, on Thursday, Oct. 9.  
*American Street Railway Association*, annual convention, in New York, on Wednesday, Oct. 15.  
*Southern Railway & Steamship Association*, annual convention, in Atlanta, Ga., on Wednesday, Oct. 15.

#### Association of Railway Telegraph Superintendents.

The annual convention of this Association was held in Philadelphia, Sept. 18 and the following day. Naturally, a good deal of time was spent in visiting the Electrical Exhibition, but the convention found time to discuss train orders and signals and other matters of interest. Some 20 members were added to the Association during the meeting.

#### Western Society of Engineers.

At the meeting in Chicago, Sept. 16, a memorial of Alexander Wolcott, one of the earliest members of the Society, was read.

Mr. Randolph exhibited, with explanations, a model and drawings of an interlocking switch and signal apparatus designed by himself, and now in use on the Chicago & Western Indiana Railroad.

#### Southern Railway & Steamship Association.

Notice is given that the tenth annual convention of the Southern Railway & Steamship Association will be held at the office of the Association, in Atlanta, Ga., on Wednesday, Oct. 15. Transportation companies, members of or working with the Association, are invited to send duly authorized representatives as per Third Article of Agreement, Oct. 24, 1883. The Convention will be called to order at noon.

#### Brotherhood of Locomotive Firemen.

The meeting of this association in Toronto continued until Sept. 29, the business meetings, as usual, being held with closed doors.

On Sept. 25 there was a ball, which was a great success, over 700 being present, including the Lieutenant-Governor and the Mayor of the city.

It was decided to change the name to the Brotherhood of Locomotive Firemen of North America, thereby covering the United States, Canada and Mexico.

The Brotherhood proposes, it is stated, to establish a general hospital for the benefit of its members.

#### New York Railroad Commission.

The following preamble and resolution was adopted by the Board of Railroad Commissioners of New York, at its meeting, Sept. 23, 1884:

"Whereas, The Board is informed that some of the railroads of this state neglect to comply with the provisions of Chapter 439 of the Laws of 1884, entitled 'An act for the better protection of life and property upon the railroads of this state, to promote the safer and better management of steam railroads;' therefore

"Resolved, That the railroads of the state be informed that in case of neglect or omission to comply with the provisions of the said act, hereafter, the Board will report the same to the proper authorities for prosecution under the act."

### ELECTIONS AND APPOINTMENTS.

*Atchison, Topeka & Santa Fe*.—Mr. Warren Sawyer, of Boston, has been chosen a director in place of Charles J. Paine, resigned. He is a leading director of the Mexican Central.

*Boston, Hoosac Tunnel & Western*.—Mr. William M. Clark is appointed General Freight and Passenger Agent in place of Mr. A. S. Crane, who has gone to the Chicago & Atlantic road. Mr. Clark was formerly with the Missouri Pacific road.

*Boston & Lowell*.—Mr. Edward F. Mann has been appointed Assistant Superintendent of the White Mountains Division, with office at Woodsville, N. H. This division consists of the Boston, Concord & Montreal road.

*Burlington, Cedar Rapids & Northern*.—The following from the office of President and General Superintendent C. J. Ives is dated Cedar Rapids, Ia., Sept. 20:

"Owing to death of Mr. B. F. Mills, General Passenger and Ticket Agent of this company, that position is now vacant. All reports and correspondence relative to passenger business may be addressed to Mr. J. E. Hannegan, Chief Clerk, Passenger Department, Cedar Rapids, Ia., until further notice."

*California Southern*.—Mr. Francis A. Peabody, of Boston, has been chosen President in place of Mr. Thomas Nickerson, resigned.

*Chicago & Northwestern*.—At a meeting of the board in New York, Sept. 27, David P. Kimball and Horace Williams, of Boston, and Wm. K. Vanderbilt, of New York, were chosen directors in place of Sidney Dillon, Jay Gould and J. B. Redfield, resigned. Messrs. Kimball and Williams represent the new Blair interest in the stock.

*Grafton, Buckhannon & Charleston*.—At a meeting held in Grafton, W. Va., last week, the following officers were elected for this new company: William Clements, President; John Bradshaw, Vice-President; J. W. Mason, Secretary; R. T. Devries, Treasurer; George M. Whitescarver, General Manager; Frank M. Hildebrandt, Auditor.

*Michigan Central*.—Notice has been issued by the company to the effect that, commencing Oct. 1, the settlement of all claims against the company for overcharges, rebates, loss, damage, etc., to freight will be made by the accounting department, under the direction of D. A. Waterman, Auditor. He will issue the proper notices and instructions. Mr. Waterman, agreeable to the above notice, has appointed James Granger to take charge of the claims mentioned, with office at Detroit.

*Minneapolis, Sault Ste. Marie & Atlantic*.—At the annual meeting in Minneapolis, Minn., Sept. 26, the following directors were chosen: W. D. Washburn, J. S. Pillsbury, H. T. Welles, John Martin, J. K. Sidle, H. E. Fletcher, Thomas Lowry, O. C. Merriman, C. H. Pettit, J. C. Oswald, Charles J. Martin, John M. Shaw, George H. Christian. The board elected officers as follows: President, W. D. Washburn; Vice-President, J. S. Pillsbury; Secretary, M. P. Hawkins; Treasurer, C. H. Pettit; Executive Committee, W. D. Washburn, J. S. Pillsbury, H. T. Welles, John Martin and Thomas Lowry.



**Missouri Pacific.**—Mr. E. K. Sibley has been appointed assistant to Third Vice-President and General Manager Hoxie, with special control of Iron Mountain lands in Arkansas. Mr. Sibley was formerly General Manager of the Memphis & Little Rock road.

**New York, West Shore & Buffalo.**—Mr. Theodore Houston has been reappointed Receiver by the New York Supreme Court, in connection with ex-Judge Horace Russell.

**Oregon Railway & Navigation Co.**—Mr. Frederick R. Nourse, of Boston, has been chosen Assistant Secretary in place of Alfred Rodman, resigned.

**Pennsylvania.**—The board has elected Clement A. Griscom a director, in place of Henry M. Phillips, deceased. Mr. Griscom is President of the Fidelity Trust Co., and of the Girard Bank, of Philadelphia.

**Railway Telegraph Superintendents' Association.**—At the annual convention in Philadelphia the following officers were chosen: President, Charles Selden, Baltimore & Ohio; Vice-President, E. C. Bradley, Pennsylvania Company; Secretary and Treasurer, P. H. Drew, Chicago & Western Indiana.

**Salem, Madison & Cincinnati.**—The headquarters of this new company are in Salem, Ind.: the directors are Wm. H. Irwin, R. H. Ramsey, T. S. Bell, W. E. Riley, J. W. Robinson, R. N. Barbour, H. E. Foster, C. G. Crane and Daniel Lane.

**Springfield, Shelbyville & Mt. Carmel.**—The directors of this new company are: J. C. Allen, Olney, Ill.; Robert Bell, Mt. Carmel, Ill.; E. H. Bishop, J. P. M. Howard, Effingham, Ill.; John Mahon, Newton, Ill.; Charles Ridgeley, Springfield, Ill.; George D. Chaffee, Anthony Thornton, Thomas M. Thornton, Shelbyville, Illinois.

#### PERSONAL.

—Mr. Alfred Rodman, Assistant Secretary of the Oregon Railway & Navigation Co., has resigned that position.

—Current reports that Mr. Alexander Mitchell had resigned his office as President of the Chicago, Milwaukee & St. Paul Co. are denied officially.

—Mr. Charles J. Paine, of Boston, has resigned his position as a director of the Atchison, Topeka & Santa Fé Co., after serving on the board for a number of years.

—Mr. R. A. W. James has resigned his office as Secretary of the Danville & St. Louis Railroad Co., and has accepted a position as lecturer at the Siege of Paris panorama in Chicago.

—Mr. John W. Garrett, President of the Baltimore & Ohio Railroad Co., died at his summer cottage at Deer Park, Md., Sept. 26. An extended sketch of his life will be found elsewhere.

—The report that Mr. Franklin B. Gowen would be a candidate for the presidency of the Philadelphia & Reading Railroad Co. at the next election, is denied by his friends, who say that he has no wish to return to that office.

—Mr. John H. Flynn, for many years Master Mechanic of the Western & Atlantic road, died in Atlanta, Ga., Oct. 1, after a short illness. He was one of the oldest and most active members of the Master Mechanics' Association, and was chosen President at the last convention.

—Baron William Engerth, one of the most eminent of Austrian engineers and known the world over for the locomotives which he designed for working the steep grades of the Semmering Railroad, one of the directors of the great Austrian railroad, died at Baden, near Vienna, Sept. 4, aged 70 years.

—It is reported that the position of Vice-President of the Philadelphia & Reading Railroad Co., vacant since the election of Mr. Keim to the presidency, has been offered to Mr. Robert Neilson, now General Superintendent of the Philadelphia & Erie Division of the Pennsylvania Railroad. Mr. Neilson has the offer still under consideration.

—A dispatch from Portland, Oregon, Sept. 25, says: "F. H. Westerman, Chief Engineer of the Oregon Pacific Railroad, was found dead near Summer station yesterday, from a pistol shot through the head. Westerman had been missing several days. Investigation fails to settle the question as to whether he was murdered or committed suicide. Deceased came here recently from the East."

—Mr. Cornelius A. Wortendyke died suddenly of apoplexy at Wortendyke, N. J., aged 64 years, on Sept. 29. He was for many years the head of a large cotton mill (to which was afterward added a silk mill) at the place which bears his name. He was one of the original projectors of the New Jersey Midland Railroad, and was President of that company until the road was sold and a new corporation formed.

—Mr. Isaac Newton killed himself at his rooms in New York, Sept. 25, cutting his throat with a razor. He was 46 years old, and was a well-known engineer, having been connected with several important public works, and with large manufacturing establishments. For some time past he had been Chief Engineer of the Croton Aqueduct, which supplies New York with water. Financial troubles are said to have been the cause of his suicide.

—Messrs. Sidney Dillon, Jay Gould and J. B. Redfield have resigned their positions as directors of the Chicago & Northwestern Co. Mr. Dillon retires on account of ill-health; Mr. Gould, it is said, because his time is sufficiently occupied with the affairs of those companies with which he is more intimately connected. Mr. Redfield, who is Auditor of the company, has been only a short time in the board, having succeeded the late Augustus Schell.

#### TRAFFIC AND EARNINGS.

##### Petroleum.

The production of the Pennsylvania and New York oil fields for August is given as follows by Stowell's *Petroleum Reporter* in barrels of 42 gallons:

|                  | 1884.      | 1883.      | Inc. or Dec. | P. c.         |
|------------------|------------|------------|--------------|---------------|
| Production.....  | 2,090,165  | 1,868,277  | I.           | 230,888 12.4  |
| Shipments.....   | 2,000,371  | 2,086,478  | D.           | 86,107 4.1    |
| Stock, Aug. 31.. | 39,084,561 | 36,164,881 | I.           | 2,919,680 8.1 |
| Producing wells. | 21,916     | 17,100     | I.           | 4,816 28.2    |

Of the total production the Alleghany District in New York furnished 12.3 per cent.; the Bradford District in Pennsylvania 71.0 per cent.; the Warren District 23.9 per cent., and the Lower District 12.8 per cent.

Stock increased during the month 98,794 barrels, being the excess of production over shipments for the month.

During the month 145 new wells were completed and 23 dry holes were developed. There were 91 new wells in process of drilling at the close of the month.

Shipments for the month were: New York, 621,522; Philadelphia, 330,798; Baltimore, 126,944; Boston, 15,816; Cleveland, 256,845; Pittsburgh, 72,908; local points,

212,332; refined at Creek refineries, 263,706; total, 2,000,371 barrels.

Shipments of oil refined at Creek refineries (reduced to its equivalent in crude) were: New York, 76,731; Philadelphia, 34,003; Baltimore, 2,747; Boston, 105,997; local points, 144,228; total, 363,706 barrels.

The *Reporter* says: "The most marked feature of the petroleum trade during the month of August was the great decrease in field operations. In almost all respects the report of field work shows a decrease from the report for July 31. In fact, the operations last month were less extensive than they have been for many years, statistics showing that not since the month of August, 1875, when there were but 150 rigs and drilling-wells in the oil country, has field work been at so low an ebb. While it would be absurd to affirm that this great decrease in work is entirely due to the efforts of the producers' alliance, it would be certainly be unjust to disregard the fact that they have contributed largely to the result, notwithstanding much has been done by individual producers who have been led to restrict in view of the present price of crude."

##### Railroad Earnings.

Earnings for various periods are reported as follows:

| Eight months ending Aug. 31 :     |             |             |              |          |      |
|-----------------------------------|-------------|-------------|--------------|----------|------|
|                                   | 1884.       | 1883.       | Inc. or Dec. | P. c.    |      |
| Norfolk & West.                   | \$1,690,734 | \$1,690,334 | D.           | \$29,600 | 2.0  |
| Net earnings...                   | 652,948     | 737,742     | D.           | 84,794   | 11.0 |
| Northern Cent....                 | 3,608,198   | 4,006,410   | I.           | 398,212  | 9.9  |
| Net earnings...                   | 1,338,788   | 1,534,394   | D.           | 195,606  | 12.8 |
| Shenandoah Val..                  | 476,047     | 527,364     | D.           | 51,317   | 9.7  |
| Net earnings...                   | 65,105      | 97,332      | D.           | 32,227   | 33.3 |
| Tol. & Ann Arbor<br>& Gd. T. .... | 144,903     | 122,848     | I.           | 22,055   | 18.0 |
| West Jersey.....                  | 929,400     | 871,992     | I.           | 57,418   | 6.6  |
| Net earnings...                   | 387,153     | 371,535     | I.           | 15,618   | 4.2  |
| Month of July:                    |             |             |              |          |      |
| Chi. & East. Ill.                 | \$128,392   | \$120,693   | I.           | \$7,699  | 6.4  |
| Net earnings...                   | 56,632      | 52,538      | I.           | 4,094    | 7.8  |
| Month of August:                  |             |             |              |          |      |
| Norfolk & West..                  | \$228,408   | \$261,711   | D.           | \$33,303 | 13.0 |
| Net earnings...                   | 117,876     | 138,833     | D.           | 20,957   | 15.0 |
| Northern Cent....                 | 510,427     | 587,272     | D.           | 76,845   | 13.1 |
| Net earnings...                   | 218,880     | 280,211     | D.           | 61,332   | 21.9 |
| Phila. & Reading.                 | 3,299,014   | 3,538,033   | D.           | 239,019  | 6.7  |
| Net earnings...                   | 1,717,192   | 1,918,942   | D.           | 201,750  | 10.5 |
| Shenandoah Val.                   | 78,767      | 92,445      | D.           | 13,678   | 14.8 |
| Net earnings...                   | 29,942      | 32,793      | D.           | 2,851    | 8.7  |
| Tol., Ann Arbor<br>& Gd. T. ....  | 22,895      | 20,262      | I.           | 2,633    | 12.9 |
| West Jersey.....                  | 223,367     | 215,986     | I.           | 7,381    | 3.4  |
| Net earnings...                   | 121,825     | 110,540     | I.           | 11,285   | 9.0  |
| Third week in September:          |             |             |              |          |      |
| Chi. & Alton ....                 | \$329,121   | \$233,850   | D.           | \$4,729  | 2.0  |
| Chi. & East. Ill..                | 41,587      | 36,675      | I.           | 4,912    | 13.3 |
| Det., Lan. & No..                 | 24,299      | 37,922      | D.           | 13,623   | 35.9 |
| Long Island.....                  | 68,727      | 67,022      | I.           | 1,705    | 2.5  |
| Louisv. & Nash..                  | 271,290     | 314,700     | D.           | 43,410   | 13.8 |
| Mil. & Northern.                  | 10,275      | 9,645       | I.           | 630      | 6.6  |
| Roch. & Pitts....                 | 25,407      | 19,437      | I.           | 5,970    | 30.9 |
| St. P. & Duluth.                  | 42,537      | 32,972      | I.           | 9,565    | 29.0 |

Weekly reports of earnings are usually estimated in part, and are subject to correction by later statements.

##### Chicago-Ohio River Pool.

At a meeting in Indianapolis, Oct. 1, of the representatives of the railways interested in the Ohio River pool, it was determined to continue the present pool till Nov. 1. In the meantime, L. D. Richardson and V. L. Malott will make a readjustment of the percentages and arrange for the admission of new lines preparatory to the reorganization of the pool, for which purpose a meeting will be held at Chicago Oct. 22.

##### New Orleans Rates.

A meeting of general freight agents was held in New Orleans last week for the purpose of revising freight rates to and from that city. The work was not completed, as there was not a full attendance. Another meeting will be held shortly.

##### East-Bound Rates.

There are reports of extensive cutting in east-bound rates from Chicago and Milwaukee, begun by the Grand Trunk. A meeting of the Chicago Committee was held in New York, Sept. 30, to further consider the settlement of the questions at issue at that point, and an understanding was arrived at which, when confirmed by the parties not present at the meeting, will lead to the immediate restoration of rates on east-bound traffic.

It is stated that the committee refused to reopen the question of the Chicago apportionment, and that the Grand Trunk accepted this decision. That company will, however, apply for a new division under the rules.

##### New England Coal Rates.

The Boston & Albany Railroad Co. has notified the public it will dissolve the coal combination with the Delaware & Hudson Canal Co. Oct. 1. It has also reduced the tariff on coal from Hudson, N. Y., to Pittsfield Mass., 28 cents per ton, open to everybody, and will give no special rates.

##### Grain Movement.

For the week ending Sept. 20, receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past nine years:

|           | Northwestern receipts. | Northwestern shipments. | Atlantic receipts. |
|-----------|------------------------|-------------------------|--------------------|
| Year.     | Total.                 | By rail.                | By rail.           |
| 1876..... | 4,225,304              | 1,767,847               | 42.5               |
| 1877..... | 4,398,814              | 1,119,699               | 22.0               |
| 1878..... | 4,484,885              | 1,306,698               | 29.1               |
| 1879..... | 5,063,693              | 1,443,291               | 28.5               |
| 1880..... | 6,098,442              | 1,952,753               | 32.0               |
| 1881..... | 5,991,875              | 2,568,493               | 37.7               |
| 1882..... | 4,403,896              | 1,752,098               | 37.6               |
| 1883..... | 6,019,691              | 2,569,793               | 37.6               |
| 1884..... | 5,975,930              | 2,293,932               | 38.4               |

Thus the receipts of the Northwestern markets for the week this year were a little less than in the corresponding week of last year, but more than in any other year; they were also slightly larger than in the previous week of this year, and were the largest for just one year.

The shipments of these markets for the week were 944,000 bushels less than in the corresponding week of last year, but larger than in any other year except 1890; they were also larger than in any other week of this year except when navigation opened. The rail shipments were less than in any other year except last year and 1881, and larger than in any other week of this year since the rate was 15 cents. The shipments down the Mississippi were 107,784 bushels.

The receipts of the Atlantic ports for the week this year were 864,000 bushels less than in the corresponding week of last year, and the smallest since 1876. Exports from Atlantic ports for this week to Sept. 20 have been for five years:

|                 | 1880.     | 1881.     | 1882.     | 1883.     | 1884.     |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Flour, bbls.... | 154,809   | 130,131   | 231,371   | 168,405   | 158,690   |
| Grain, bu....   | 4,480,472 | 3,022,800 | 3,488,082 | 2,405,642 | 1,788,494 |
| Total, bu....   | 5,177,112 | 3,608,389 | 4,529,851 | 3,154,464 | 2,502,599 |

Thus the exports this year were a fifth less than last year, 45 per cent. less than in 1883, 30 per cent. less than in 1881, and 51 per cent. less than in 1890. The grain exports this

year were the smallest for six weeks, and with one exception the smallest for 11 weeks.

Buffalo grain receipts by lake from the opening to Sept. 30 were as follows, flour in barrels and grain in bushels, flour being reduced to wheat in the totals:

|                   | 1884.      | 1883.      | Inc. or Dec. | P. c.           |
|-------------------|------------|------------|--------------|-----------------|
| Flour.....        | 1,667,301  | 1,508,154  | I.           | 159,147 10.5    |
| Grain.....        | 37,606,439 | 48,657,949 | D.           | 11,051,510 22.7 |
| Total bushels.... | 45,912,944 | 50,166,103 | D.           | 4,253,159 8.3   |

Shipments eastward of grain received by lake for the same period were, in bushels:

|                       | 1884.      | 1883.      | Decrease. | P. c. |
|-----------------------|------------|------------|-----------|-------|
| By canal.....         | 26,610,317 | 32,345,674 | 5,735,358 | 17.7  |
| By rail.....          | 7,707,372  | 10,434,540 | 2,727,222 | 26.1  |
| Total.....            | 34,317,689 | 42,780,214 | 8,462,525 | 19.8  |
| Per cent. by rail.... | 22.5       | 24.4       |           | 1.9   |

The canal opened on the same date (May 7) in both years, giving the same period of navigation.

##### Cotton.

Cotton movement for the week ending Sept. 26 is reported as follows, in bales:

|                   | 1884.   | 1883.   | Inc. or Dec. | P. c.        |
|-------------------|---------|---------|--------------|--------------|
| Interior markets: |         |         |              |              |
| Receipts.....     | 92,949  | 88,999  | D.           | 3,950 29.0   |
| Shipments.....    | 51,111  | 58,400  | D.           | 7,289 12.5   |
| Stock, Sept. 26.. | 36,195  | 105,778 | D.           | 69,583 65.7  |
| Seaports:         |         |         |              |              |
| Receipts.....     | 118,463 | 125,032 | D.           | 6,569 5.3    |
| Exports.....      | 31,914  | 39,365  | D.           | 7,451 19.0   |
| Stock, Sept. 26.. | 225,565 | 330,919 | D.           | 111,354 33.0 |

Shipments from plantations for the cotton year (from Sept. 1) to Sept. 26 are estimated at 275,865 bales, against 376,129 last year, when the movement was very early. This does not include Southern consumption.

##### Coal.

Coal tonnages for the week ending Sept. 20 are reported as follows:

|                     | 1884.   | 1883.   | Inc. or Dec. | P. c.        |
|---------------------|---------|---------|--------------|--------------|
| Anthracite.....     | 837,851 | 730,610 | I.           | 111,241 15.3 |
| Eastern bituminous. | 198,485 | 184,515 | I.           | 13,970 7.6   |
| Coke.....           | 42,428  | 60,134  | D.           | 17,706 29.5  |

The condition of the anthracite market is unchanged, and it is uncertain whether the stoppage of mining for the first week in October will be sufficient to regulate the output.

Cumberland and Clearfield coal shipments continue large, and the production of those regions for the current year will be the largest on record.

The coal tonnage of the Pennsylvania Railroad for the week ending Sept. 20 was:

|                      | Coal.   | Coke.  | Total.  |
|----------------------|---------|--------|---------|
| Line of road.....    | 142,366 | 36,704 | 179,070 |
| From other lines.... | 73,887  | 5,724  | 79,611  |
| Total.....           | 216,253 | 42,428 | 258,681 |

The total tonnage this year to Sept. 20 was 9,483,469 tons, against 8,629,561 tons to the corresponding date last year, an increase of 854,908 tons, or 9.9 per cent.

The coal tonnage of the Chesapeake & Ohio Railroad for the eight months to Aug. 31 was:

|            | 1884.   | 1883.   | Decrease. | P. c. |
|------------|---------|---------|-----------|-------|
| Coal.....  | 560,520 | 607,061 | 46,541    | 7.7   |
| Coke.....  | 42,628  | 70,961  | 28,333    | 39.9  |
| Total..... | 603,148 | 678,022 | 74,874    | 11.0  |

The decrease was entirely in canal, block and gas coals, the New River steam coals showing an increase.

Actual tonnage passing over the Huntingdon & Broad Top Mountain road for the nine months ending Sept. 27 was:

|                     | 1884.   | 1883.   | Inc. or Dec. | P. c.        |
|---------------------|---------|---------|--------------|--------------|
| Broad Top coal..... | 143,932 | 140,652 | I.           | 3,280 2.3    |
| Cumberland coal.... | 312,219 | 568,940 | D.           | 256,721 14.9 |
| Total.....          | 456,151 | 709,592 | D.           | 253,441 30.1 |

The Broad Top coal is mined on the line; the Cumberland is carried through for the Pennsylvania Railroad.

The anthracite coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the nine months ending Sept. 27 was:

|                             | 1884.     | 1883.     | Inc. or Dec. | P. c.       |
|-----------------------------|-----------|-----------|--------------|-------------|
| Coal Port for shipment.     | 76,938    | 87,615    | D.           | 10,677 12.1 |
| S. Amboy for shipment.      | 457,235   | 474,832   | D.           | 17,597 3.8  |
| Local points on N. J. divs. | 576,643   | 602,528   | D.           | 25,885 4.5  |
| Co.'s use.....              | 137,070   | 118,857   | I.           | 18,213 15.3 |
| Total.....                  | 1,247,886 | 1,283,832 | D.           | 35,946 2.8  |

Of the total this year 1,050,340 tons were from the Lehigh Region and 197,546 tons from the Wyoming Region.

Cumberland coal shipments for the nine months to Sept. 27 are reported by the Cumberland Civilian as follows:

|                           | 1884.     | 1883.     | Inc. or Dec. | P. c.        |
|---------------------------|-----------|-----------|--------------|--------------|
| Shipments from mines:     |           |           |              |              |
| Cumberland & Pa. R. R.    | 1,356,547 | 1,195,542 | I.           | 161,005 13.4 |
| George's Creek & Cum.     | 390,468   | 394,436   | D.           | 3,968 1.0    |
| West Va. Central & Pitts. | 332,618   | 238,356   | I.           | 94,262 39.6  |
| Direct to Balt. & Ohio    | 1,089     | 33,019    | D.           | 31,930 96.8  |
| Total.....                | 2,080,722 | 1,861,353 | I.           | 219,369 11.8 |

Shipments out of region:

|                          | 1884.     | 1883.     | Inc. or Dec. | P. c.        |
|--------------------------|-----------|-----------|--------------|--------------|
| Baltimore & Ohio R. R.   | 1,026,100 | 1,535,544 | D.           | 509,444 32.2 |
| Bedford Div., Pa. R. R.  | 283,468   | 327,550   | D.           | 44,082 13.4  |
| Chesapeake & Ohio Canal. | 235,610   | 507,793   | D.           | 272,183 59.6 |
| Total.....               | 2,080,722 | 1,861,353 | I.           | 219,369 11.8 |

Local deliveries are included in the shipments credited to the Baltimore & Ohio Railroad.

##### Transcontinental Association.

At the meeting in Chicago last week the principal subject under discussion was the apportionment of the territory among the various lines. The Northern Pacific was conceded all the territory



the Missouri. Colorado business has been pooled for the same period, providing the Presidents of the roads ratify the agreement. Mr. Midgley is in charge of the pools east of the Missouri and Commissioner Daniels west of the river. The question of rates to Nebraska was settled by the adoption of an agreement to maintain rates until Dec. 31. J. F. Tucker is arbitrator for all of the pools and also for the Nebraska traffic agreement. A few details have not yet been settled, but they are of small importance.

#### Live Stock on the Northern Pacific.

The St. Paul *Pioneer-Press* says that probably 75,000 head of cattle will be sent to market over the Northern Pacific from ranches in Dakota and Montana before the close of this season, and that 200,000 yearlings and two-year-olds have been shipped westward over it this year to stock ranches with. Preparations are being made to ship cattle by steamer from Duluth to Buffalo.

#### RAILROAD LAW.

##### Ticket—Limitation of Time.

P. bought an excursion ticket which on its face was good for three days, including the day of sale. The ticket was dated Dec. 13, and on Dec. 16 he offered it for his return passage. The conductor refused to allow P. to travel on the ticket, and ejected him from the car, for which trespass he sued the company. In this case—Pennington vs. Philadelphia, Wilmington & Baltimore Railroad Co.—the plaintiff was defeated, and he took the judgment to the Court of Appeals of Maryland, where it was affirmed. Judge Bryan, in the opinion, said: "If a passenger chooses to do so he may stand upon his legal rights and elect to be carried to his destination without making any special contract with the company, paying the regular rates of fare. The mere purchase of a ticket does not constitute a contract. Before the ordinary liability of the railroad company can be varied there must be a consent of the passenger founded upon a valuable consideration. The ticket, ordinarily, is only a token showing that the passenger has paid his fare. But when the ticket is sold at less than the usual rates, on the condition that it shall not be used after a limited time, if the passenger accepts and uses the ticket, he makes a contract with the company according to the terms stated, and the reduction in the fare is the consideration for his contract. It is true he pays his fare before he receives his ticket, but if he has been misled or misinformed by the seller of the ticket as to its terms, he has the right to return the ticket and receive back his money. The railroad company agrees to carry him at the reduced rate upon the conditions stated on the face of his ticket; if he agrees to those terms the contract is executed; but he cannot take advantage of the reduction of the rate and reject the terms on which alone the reduction was made. The offer to pay fare from the station at which the plaintiff was expelled did not entitle him to admission to the cars. He was bound to pay his fare from the starting point on his return."—*Baltimore Day*.

##### Right of Way—Possession by Consent.

St. J. acquiesced in a railroad company entering upon and using his land to build a track upon it; he made no attempt to stop the work being done. After the company had expended large sums in completing the line, St. J. then demanded rent for the use and occupation of the land, and on the refusal of the company to pay rent he brought suit for it, and recovered a judgment. The company carried the case—St. Julien vs. Morgan's Louisiana & Texas Railroad Co.—to the Supreme Court of Louisiana, where the judgment was reversed. Judge Manning, in the opinion, said: "Having permitted the use and occupancy of his land and the construction of a quasi public work thereon without resistance, or complaint even, the plaintiff cannot afterward require its demolition, nor prevent its use, nor treat the company erecting it as his tenant. He is not debarred from an action for damages by reason of the taking of the land and for its value; but having acquiesced in the entry, and encouraged, if he did not invite it, he cannot afterward affect to treat it as tortious. Considerations of public policy, not less than the suggestions of natural justice, require in such cases that the owner shall not be permitted to reclaim his property free from the servitude he has permitted to be imposed upon it, but shall be restricted to his right of compensation."—*Baltimore Day*.

#### OLD AND NEW ROADS.

**Addison & Northern Pennsylvania.**—This company shipped over its road to the Erie, in the month of August last, 400 car loads of coal and freight, and received from the Erie, during the same month, 150 car loads of freight.

**Annisston & Chattanooga.**—Surveys for the projected line from Anniston, Ala., to Gadsden are progressing well under charge of Mr. F. E. Hardaway as Chief Engineer. Thus far a very good line has been found.

**Baltimore & Ohio.**—The new extension to Philadelphia is being rapidly pushed. The *Wilmington Morning News* says: "The tug Transfer arrived here Thursday morning with a large barge-load of 1,500 oak cross-ties from Baltimore for the Baltimore & Philadelphia road, and they are now being unloaded at Shipley street wharf. Steel rails will follow in a few days, when the work of constructing the track will begin at once at the junction of the old Delaware Western branch and the proposed new road, about three miles from this city. Superintendent McConnell, with a force of men and a construction train, has already built switches both north and south from this junction to connect the old Delaware Western with the new road. Their object in laying the track in this vicinity at once is to avoid all danger of trouble hereafter, as the charter granted by the Delaware Legislature makes it obligatory to have the road in Delaware in running order by Jan. 1, 1885, or the charter is liable to be forfeited. Work of laying rails will also begin near Newark soon. The grading in Delaware is almost completed. Ryan & McDonald finished their cut near Schuetzen Park last night, and sections Nos. 23, 24 and 25, between this city and Newark, are the only ones unfinished, and the work on them will be completed in about one month. One great desideratum, the masonry, is nearly finished in Delaware, thus leaving everything in readiness to lay the track, of which there will be 21 miles in this state. About 125 men will probably be engaged in tracklaying and about one-half a mile of road will be built daily. If put to a pinch all of the Delaware section of the road could be constructed in one week. Only one track will be constructed at first, and although trains will be able to run by Jan. 1, it will be temporary, and it is not intended to open the road for regular traffic at that time, but merely as an available means of conveying the material for the construction of the remainder of the road. The first permanent track will then be laid on a ballasted roadbed alongside the temporary one, and as soon as this is completed the temporary track will be torn up and relaid on a substantial ballasted roadbed."

"The grading between the Delaware state line and Ches-

ter is being rapidly pushed, and will not require very long to finish, as it contains but one cut of any size, and that is near Chester. The greatest delay will be in the construction of the immense structure which is to span the Susquehanna, which will not be completed until about July, 1885."

The will of the late President Garrett provides that the 30,000 shares of Baltimore & Ohio stock owned by him personally shall be held in trust for 20 years, his expressed wish being that they shall be used in connection with the holdings of the city of Baltimore and the Johns Hopkins trust, to continue the present management and policy of the company. The dividends are to go to his children, and at the end of the 20 years the stock is to be divided equally among them or their heirs. This disposition of his stock does not include the large amount held by the firm of Robert Garrett & Sons.

**Black Creek Short Line.**—This company (J. D. Webb and others, of Birmingham, Ala.) has filed articles of incorporation in Alabama to build a railroad from a point five miles north of Birmingham, on the South & North road, to a point three miles east of Birmingham on the Georgia Pacific road, with privilege of extending in either direction.

**Buena Vista.**—Track-laying is now in progress on this road, and the rails are down from the junction with the Southwestern Division of the Central Railroad at Anderson, Ga., westward to Ellaville, 10 miles. The grading from Ellaville to Buena Vista, 16 miles, is all finished.

**Buffalo, New York & Philadelphia.**—This company will pay interest due Oct. 1 according to the funding plan. The total amounts to \$140,040. Half only will be paid in cash. Every bond on which interest is due Oct. 1 has assented to the funding plan. There have been \$34,000 Pittsburgh, Titusville & Buffalo bonds exchanged for Buffalo, Pittsburgh & Western generals, making the total amount of the latter outstanding \$4,061,000. All are held in Europe.

**Central Iowa.**—The *Boston Herald* says: "A Chicago special says a new mortgage of \$6,748,000 was recorded yesterday by the Central Iowa Railway Company covering the entire property, and bearing 6 per cent. interest. It will be used to take up the \$3,700,000 7s., \$1,531,000 6s., and \$1,512,000 Illinois Division bonds. Some doubt is felt locally whether the above dispatch is correct. That it was the intention of the Sully-Sage management to consolidate the divisions of the road and issue a consolidated mortgage is known, but as that interest had not a majority of shares, and as a suit to depose the Sully-Sage directors is pending, it is doubted if an attempt is being made to carry out such intention against the majority protest, if not also in defiance of the court. Further legal complications are threatened."

**Chicago & Eastern Illinois.**—This company's earnings for the month of July are reported as follows:

|                          | 1884.     | 1883.     | Inc. or Dec. | P. c. |
|--------------------------|-----------|-----------|--------------|-------|
| Earnings .....           | \$128,392 | \$120,693 | I. \$7,699   | 6.4   |
| Expenses .....           | 71,759    | 68,154    | I. 3,605     | 5.3   |
| Net earnings .....       | \$56,633  | \$52,539  | I. \$4,094   | 7.8   |
| Per cent. of expenses... | 55.9      | 56.5      | D. 0.6       | ....  |

The coal traffic of the road in September, it is stated, has been the heaviest ever carried, and there was a fair increase in gross earnings.

**Chicago & Iowa.**—Surveys are to be made for a branch from this road at Oregon, Ill., west to Savanna, about 45 miles.

**Cincinnati, Van Wert & Michigan.**—Track is reported laid to the Indiana, Bloomington & Western crossing at Gravel Hills, O., 9 miles southward from Greenville, and 102 miles from the Northern terminus at Cecil.

**Concord.**—A dispatch from Concord, N. H., Sept. 29, says: "Ever since the breaking up of the business arrangement between the Boston & Lowell and the Concord railroads in March, 1883, by which the two roads had from August, 1881, up to that time been operated by a joint management under a five years' contract, which the New Hampshire Supreme Court set aside, there has been a deal of discussion and contention between the officers and managers of the two divorced roads, concerning the terms on which the through business coming to them from the three northern roads centering here should be done by each. After a year and a half of negotiation and contention an agreement has finally been made which is entirely satisfactory to both roads, has been reduced to writing, been ratified by the directors of both roads, and goes into effect at once. The new contract is for five years, and embraces the business of the Northern, Concord & Claremont and the Boston, Concord & Montreal roads, which are now leased lines of the Boston & Lowell, from and to points beyond White River Junction, Wells River and Groveton. The precise terms of the contract are not made known, but the officials of the roads interested affirm that they are highly satisfactory to all concerned. This agreement ends the only railroad war of any consequence in New Hampshire, and places the roads in a good position to transact all the business they may be able to secured on remunerative terms."

**Galveston, Sabine & St. Louis.**—Iron has been received for 26 miles of this road, from Longview, Tex., southward, and rails for 8 miles more are on the way. The grading is now nearly finished to the crossing of the Houston, East & West Texas road at Wood, 34 miles from Longview.

**Greenfield.**—This company has been organized to build a railroad from Greenfield in Dade County, Mo., to a connection with the Kansas City, Fort Scott & Gulf road. The distance is 3½ miles.

**Indianapolis, Eel River & Southwestern.**—The *Indianapolis News* says: "The projectors of this road have abandoned all intention of building into this city at present. About 25 miles of track running into the coal fields west of the Louisville, New Albany & Chicago road will be built, and probably nothing more."

**Lehigh Valley.**—A telegram from Pittsburgh says that a contract has been closed between the Lehigh Valley Railroad Co. and the Pittsburgh & Western Railroad Co. for the purchase by the former of a half interest in the track of the latter from a point at the mouth of Plum Creek Valley, on the Allegheny River, to Woods Run, in Allegheny City, both roads to use the line in perpetuity. The Lehigh Valley Co. has also purchased outright six acres of land on Smoky Island, in Allegheny, on the line of the Pittsburgh & Western road, for depot and yard purposes. It will extend its line from Ashland, Pa., its present western terminus, through Huntingdon and Blairsville and the points named on the Allegheny River, and erect a bridge over the latter stream at that point. The new lines are to be completed within the present year.

If this dispatch is based upon fact—and it is quite possible that it is not—it would seem to indicate a rupture of the friendly relations which this company has always maintained with the Pennsylvania Railroad Co. The proposed extension would parallel the Pennsylvania on the north, as the South Pennsylvania is doing on the south side. A road

from Ashland to Pittsburgh cannot be built in a day, or without a good deal of money, and it is quite possible that the dispatch is based upon purely imaginary grounds. The truth of the report is denied by officers of the company.

**Louisville, New Orleans & Texas.**—The work of surfacing the track is nearly completed, and the first through train for Memphis will probably leave New Orleans on Oct. 4. On the same day the company will occupy the new passenger station in Poydras street in New Orleans.

The *New Orleans Times-Democrat* says: "The company is now at work constructing a road from Port Allen, opposite Baton Rouge, to Vermillionville in order to have a connection with the Louisiana Western and the Mississippi Valley roads. The length of the line is about 60 miles, of which distance 16 miles of road is already in operation, namely, the Grosse Tete road, which several months ago was purchased by Mr. Huntington through his agent, Mr. J. G. Parkerson. The Grosse Tete road has a fair roadbed, which can be easily improved and the 5-ft. gauge changed to the standard. The contract for building the road has been awarded to Messrs. Rogers & Ballantine, and at present they are engaged in running a line from the terminus of the Grosse Tete road to Vermillionville. The survey of the line is about completed, and in the course of a few weeks work will commence and will probably be completed about Jan. 1. The Vermillionville Branch will serve as a cut-off for the Huntington system; in other words, freight from California bound east will be sent over the Vermillionville Branch to Baton Rouge, and thence over the Mississippi Valley road to Memphis, and then via Chesapeake & Ohio road to the point of destination. All freight, however, that is for shipment to foreign ports will come to New Orleans over the Morgan road."

**Minneapolis, Lynndale & Minnetonka.**—This company has completed a branch or extension of its road from Minneapolis, Minn., south to the Falls of Minnehaha, a distance of 6 miles. Like the old road, the new line is of 3 ft. gauge, and is intended for suburban and pleasure travel; it is worked with small locomotives or steam motors. The old line was from Minneapolis to Excelsior, on Lake Minnetonka, 20 miles.

**Minneapolis & St. Louis.**—The St. Paul *Pioneer-Press* says: "Messrs. Langdon & Co. are now grading the Cannon Valley Branch of the Minneapolis & St. Louis, from Waterville westward to some point not yet selected in Mankato township, which will entitle the company to benefits under the grant of lands to the Minnesota Central, or Cannon Valley Division. From thence this branch will be extended to Winthrop, located on the Minneapolis & St. Louis road, about 45 miles east of Redwood Falls, and nearly north of Mankato. It is stated positively that the engineers who have been prospecting north of Herman do not represent the Rock Island interest, which is now devoting its energies to the completion of the Cannon Valley Division, it being the present expectation that the latter will be completed and cars running thereon by Nov. 1. It is learned from unofficial sources that corps of engineers will be placed in the field to make preliminary surveys of lines running northwest from Watertown, but no one pretends to know their objective point of ultimate termination."

The extension is to be paid for by the issue of Minnesota Central bonds at the rate of \$20,000 per mile.

**New Orleans & Northeastern.**—It is reported that a branch will be built from Brandon, Miss., to a point on the Gulf opposite Ship Island.

On the night of Sept. 25 a passenger train on this road discovered the bridge across Lake Pontchartrain on fire between the north and south drawbridges, and rapidly making its way to the north side of the lake. Every effort was made to reach the fire or to attract the attention of the people on the other side, but without avail. Before the fire could be got under control 2,610 ft. of the bridge were destroyed.

A later dispatch says that the piles were not destroyed, as was at first reported. The decking was burned off, and can be repaired in a few days. In the meantime, a transfer will be made over the half-mile gap by a steamboat now at the point of transfer. The actual damage by fire will not, probably, exceed \$20,000. The company has an abundance of material and a large force of laborers on hand to make the necessary repairs.

**New York Central & Hudson River.**—The report that this company was about to make a new issue of bonds, which has been repeatedly denied, proves to be true after all, and the issue has been authorized by the directors. A semi-official statement of this action is as follows:

"Between the years 1871 and 1883, inclusive, the New York Central & Hudson River Railroad Co. expended for construction and for the purchase of stocks and bonds of connecting lines, which securities are now owned by the company, the sum of \$53,500,000. During the same period the bonded debt was increased by \$33,500,000, leaving an excess of expenditures of \$20,000,000. Toward this excess the company has used the sum of \$8,300,000 of surplus earnings, over and above the 8 per cent. annual dividends paid to the stockholders during period named; also income and earnings from other sources amounting to \$5,200,000, leaving a balance of \$6,500,000, which is represented by temporary obligations. The company, with a view to fund this amount, has authorized the issue of \$10,000,000 of 20-year 5 per cent. debentures. Of these \$6,500,000 have been sold to Messrs. J. S. Morgan & Co., of London, and the remaining \$3,500,000 are reserved and appropriated exclusively for the retirement of the Hudson River Railroad second-mortgage bonds, due in 1885, amounting to \$1,350,000, and the New York Central 6s, due Dec. 15, 1887, \$2,150,000. In issuing these debentures the company has stipulated that no new mortgage shall be created prior to 1902 which shall not include the debentures now issued. These debentures are to be issued in bonds of \$1,000 each, with coupons attached, or certificates of \$5,000 registered in the name of the holders and transferable on the books of the company. In order to insure the issue of these debentures being kept within the limit now authorized, they contain a clause that they shall not be valid unless countersigned by the Union Trust Co. as registrar."

**New York & New England.**—Mr. Charles P. Clark, Receiver of the road, emphatically contradicts, in general terms, a recent statement of the *Hartford Post*, about the decline of the road's business, and explains as follows:

"When I took charge of the affairs of the road we had \$1,500,000 worth of rolling stock belonging to other roads in our possession, and, as we had stock enough in my opinion to do our own business, I thought it a wise and prudent course to discontinue the use of the stock belonging to other roads and returning it to the owners as soon as practicable. The engines now idle result from this cause, and they will be returned to the roads owning them as soon as convenient. We are not hampered at all in doing our business with our own rolling stock. Some of it is not quite so pretty as the discontinued stock, but it is substantial and serviceable, and answers the purpose."

"The statement," continued Mr. Clark, "that it is con-



templated to place an assessment of \$7 per share on the stock at the forthcoming stockholders' meeting is too ridiculous to need refutation. It is impossible to do such a thing, because there is no warrant of law to justify it. It is probable that at the stockholders' meeting a vote will be passed to issue preferred stock, as provided by the act passed by the Legislature last winter."

**New York, Philadelphia & Norfolk.**—Track on this road is now laid to Franktown, Va., 13 miles southward from the late terminus at Pungoteague and 48 miles from Pocomoke, Md., where the new extension begins. About 25 miles remain to complete the road to Cape Charles City, as the new town at the southern terminus of the road has been named.

The company proposes building a branch from New Church, in Accomac County, Va., east 8 miles to Bloodgood's Landing, on Chincoteague Bay, the object being to secure the large oyster traffic from the bay. This branch may hereafter be extended further down the beach.

Cape Charles City will be the landing point for the boats which will run to Norfolk in connection with the road, and the company expects to build up a summer resort at that place.

**New York, West Shore & Buffalo.**—The following is the statement to the Railroad Commission of earnings, expenses and net income of this company for the quarter April 1 to June 9, 1884. It will be noticed that the period covered is only 70 days.

|  |           |
|--|-----------|
| Gross earnings.....                      | \$609,813 |
| Operating expenses, excluding taxes..... | 919,772   |
| Deficit from operation.....              | \$312,459 |
| Interest on funded debt.....             | \$479,166 |
| Taxes.....                               | 3,342     |
| Rentals.....                             | 124,408   |
| Interest on mortgages.....               | 12,147    |
| Total charges.....                       | 614,065   |

Deficit.....\$932,024

The following is a statement of the floating debt on June 9, 1884:

|                               |             |
|-------------------------------|-------------|
| Bills payable.....            | \$475,115   |
| Interest due and accrued..... | 1,450,283   |
| Due wages and supplies.....   | 1,605,956   |
| Sundries.....                 | 1,071,565   |
| Total.....                    | \$5,502,919 |

|                    |           |
|--------------------|-----------|
| Due by agents..... | \$852,010 |
| Cash.....          | 17,500    |
| Total.....         | \$869,510 |

Net floating debt.....\$4,633,409

The working expenses were 157 per cent. of gross earnings. From June 9 on the statement will be furnished by the Receivers. It is stated that the expenses are now considerably less than the earnings.

A majority of the bondholders having represented that they were in favor of the continuance of Mr. Houston as Receiver, the Court has withdrawn its objections and has made Judge Horace Russell and Mr. Theodore Houston Receivers. Judge Russell has been temporary Receiver since the original appointment made at Newburg has been set aside.

**Norfolk & Western.**—This company makes the following statement for August and the eight months ending Aug. 31:

|                        | August.   | 1883.     | Eight months. | 1883.       |
|------------------------|-----------|-----------|---------------|-------------|
| Earnings.....          | \$228,408 | \$261,711 | \$1,690,735   | \$1,680,334 |
| Expenses.....          | 110,532   | 122,878   | 1,007,787     | 952,592     |
| Net earnings.....      | \$117,876 | \$138,833 | \$682,948     | \$727,742   |
| Per cent. of exps..... | 48        | 47        | 61            | 56          |

For the eight months the decrease in gross earnings was \$29,589, or 2 per cent., and the increase in expenses \$55,195, or 6 per cent., the result being a decrease of \$84,784, or 11 per cent., in net earnings.

**Northern Central.**—This company's statement for August and the eight months ending Aug. 31 is as follows:

|                         | August.   | 1883.     | Eight months. | 1883.       |
|-------------------------|-----------|-----------|---------------|-------------|
| Earnings.....           | \$510,427 | \$587,272 | \$3,608,198   | \$4,006,410 |
| Op. expenses.....       | \$253,529 | \$288,121 | \$2,023,629   | \$2,215,399 |
| Extraordinary exps..... | 38,009    | 18,940    | 246,081       | 256,617     |
| Total exps.....         | \$291,538 | \$307,061 | \$2,269,710   | \$2,472,016 |

Net earnings.....\$218,889

For the eight months the gross earnings decreased \$398,212, or 9.9 per cent., and the net earnings \$195,906, or 12.8 per cent., operating expenses having decreased \$191,770, and extraordinary expenses \$10,536, making a decrease of \$202,306, or 8.2 per cent., in total expenses.

**Ohio & Mississippi.**—The committee of stockholders opposed to the Baltimore & Ohio control claim to have at last obtained a majority of the stock and proxies on sufficient amount of the bonds to carry the election. They now propose to elect to the director Mr. George S. Morison, of New York, representing Baring Brothers' interest, and two other gentlemen representing interests in the stock. This will give the outside stockholders six representatives in America and one in England out of the 13 directors.

**Orleans, French Lick, Baden & Jasper.**—This company has been organized to build a railroad from Jasper, Ind., northward to Orleans in Orange County, about 44 miles.

**Philadelphia & Reading.**—By the report of the Master for July, the cash account of the railroad company shows a balance on hand on July 1 of \$237,571, which added to the receipts makes a total of \$4,309,735, and after deducting the disbursements a balance of \$212,983 is left on hand. The Reading Coal & Iron Co.'s account shows a balance of \$2,179 carried over, which added to the receipts makes a total of \$1,162,345, and after deducting the disbursements from the latter sum a balance of \$34,709 remains on hand Aug. 1.

A circular issued by the Receivers to the New Jersey Central Railroad Car Trust Association, asking holders of certificates drawn for payment Oct. 1 to defer payment until 1886, met with such a cold reception that the proposal has been withdrawn, and the Receivers will now pay off the certificates.

The Receiver's monthly statement gives the following figures for the earnings of the railroad for August and the nine months of the fiscal year from Dec. 1 to Aug. 31:

|               | August.     | 1883.       | 1884.        | 1883.        |
|---------------|-------------|-------------|--------------|--------------|
| Earnings..... | \$3,290,014 | \$3,538,033 | \$22,583,111 | \$19,278,361 |
| Expenses..... | 1,581,822   | 1,619,091   | 13,256,745   | 10,454,003   |

Net earnings.....\$1,717,192

For the nine months the increase in gross earnings was \$9,004,750, or 17.1 per cent., and in net earnings \$508,008, or 29.9 per cent. The New Jersey Central is included for the

entire year this year, but for three months only (from June 1) last year.

The traffic reported is as follows, the Central lines being included as above for the whole of this year, but for three months only last year:

|                            | August.   | 1883.     | 1884.      | 1883.      |
|----------------------------|-----------|-----------|------------|------------|
| Passengers carried.....    | 2,296,192 | 2,484,450 | 17,791,926 | 12,155,532 |
| Tons merchandise.....      | 747,976   | 902,168   | 6,588,391  | 5,811,702  |
| Tons coal.....             | 1,416,009 | 1,372,828 | 8,359,462  | 7,431,633  |
| Tons coal on colliers..... | 51,783    | 47,648    | 392,826    | 388,999    |

For the month there was a decrease in everything but coal. How much of the increase reported for the nine months came from the Central Railroad there is no way of determining, the separate statements formerly made for that road having been suspended.

The earnings of the Philadelphia & Reading Coal & Iron Co. were as follows:

|                     | August.     | 1883.       | 1884.        | 1883.        |
|---------------------|-------------|-------------|--------------|--------------|
| Earnings.....       | \$1,948,740 | \$1,866,105 | \$11,546,708 | \$11,547,483 |
| Expenses.....       | 1,737,054   | 1,732,468   | 11,738,956   | 11,263,606   |
| Net or deficit..... | \$211,686   | \$133,637   | \$807,752    | \$283,877    |

This company shows a surplus for the month for the second time this year. For the nine months there was a decrease of \$690 in gross earnings and an increase of \$478,260 in expenses, making a net loss of \$479,950, changing the small net earnings of last year to a deficit for the present year.

The coal mined and shipped from the company's lands was as follows:

|                        | August. | 1883.   | 1884.     | 1883.     |
|------------------------|---------|---------|-----------|-----------|
| By Coal & Iron Co..... | 649,470 | 501,211 | 3,313,833 | 3,045,091 |
| By tenants.....        | 74,816  | 145,039 | 549,305   | 1,077,093 |
| Total.....             | 724,286 | 646,250 | 3,863,138 | 4,122,184 |

It will be noted that while there was, for the nine months, an increase in the coal mined by the company, there was a large decrease in that mined by tenants. This is probably caused by the surrender of leases by tenants.

In the statements above, the expenses do not include anything for interest or rentals, the net earnings being the amounts from which those charges are to be paid.

The net result for both companies was as follows:

|                     | August.     | 1883.       | 1884.       | 1883.       |
|---------------------|-------------|-------------|-------------|-------------|
| Net earnings.....   | \$1,717,192 | \$1,918,942 | \$9,326,366 | \$8,824,358 |
| Railroad Co.....    | 211,686     | 133,637     | \$190,158   | 283,792     |
| Coal & Iron Co..... | \$1,928,878 | \$2,052,570 | \$9,136,208 | \$9,108,150 |

\*Deficit.

For the month the net decrease was \$123,801, or 6 per cent. For the nine months, notwithstanding the operation of the Central lines for six months longer this year than last, the net increase was only \$28,058, or 0.3 per cent. It must be remembered that the Central rental for the first half of the current year, is entirely an additional charge. The exact amount cannot be given, but the total amount required for its payment this year must have been about \$3,250,000 greater than was needed in the three months under the lease last year. This amount being deducted from the net earnings this year to make a fair comparison, we have a decrease in the amount available for Reading fixed charges for the nine months of \$3,221,942, or 35.4 per cent.

**Pittsburgh, Chartiers & Youghiogheny.**—The stockholders have voted to authorize the issue of \$180,000 additional bonds for the purpose of making improvements and building spurs to mines.

**Pittsburgh Junction.**—The work of laying track on this road is about completed and the river bridges have been fully tested. No time has yet been set for the opening. The road is 4½ miles long, extending from the Monongahela River across the eastern part of the city of Pittsburgh to the Allegheny at Herr's Island and across that river to a junction with the Pittsburgh & Western in Allegheny. It has been a very expensive line to build, including a tunnel 3,000 ft. long and numerous bridges over street and railroad tracks, besides the bridge over the Allegheny. Its object is to connect the Baltimore & Ohio with the Pittsburgh & Western, and also to give it access to a number of mills and factories. The bonds of the company are guaranteed by the Baltimore & Ohio Co., which controls the organization.

**Rochester & Southern.**—The Rochester (N. Y.) Union says: "Messrs. Gray and Story leave the city today to make preliminary surveys of the line of the proposed rail to Hemlock Lake. Inquiries have been made of late as to what had become of the enterprise. A company was organized July 28, 1878, and incorporated under the name of the Rochester & Southern. A grant was obtained from the state allowing the projectors of the enterprise to come into the city by way of the Feeder bank on certain conditions, one being that they raise the bank three feet. The value of the grant, giving as it does access to almost the centre of the city, is apparent, and why nothing definite has been done is a mystery. Various circumstances have, however, prevented any active measures, but the enterprise is by no means dead, as the present move indicates. The capital stock of the company is \$300,000, and enough has been taken to warrant a start. It is understood that the citizens of Lima and vicinity, to whom the road will be of incalculable benefit, stand ready to take \$100,000 of the stock. Last summer a survey of the feeder line proper was made, but was only completed to a point a short distance south of the city. The line along which the survey will be made runs along the feeder to a point about 500 ft. north of the Erie bridge; then southerly and parallel to the Erie, keeping on the east side until reaching the West Shore Junction, where a southeasterly direction will be taken to East Henrietta; then to Rush, through Sibleyville, Honeye Falls, Lima, Richmond, Hemlock Lake village to the lake at a point near the Jacques house. As has been announced, the road will be narrow gauge."

**Salem, Madison & Cincinnati.**—This company has been incorporated to build a railroad from Salem, Ind., eastward to Cincinnati, about 120 miles.

**San Pete Valley.**—Track on this road is now laid to Maroni, Utah, 5 miles beyond the late terminus at Wales, Utah, and 35 miles from the junction with the Utah Central at Nephi. Surveys have been made for an extension from Maroni to Manti, 15 miles, and work will be begun on this section next spring.

**Shenandoah Valley.**—This company makes the following statement for August and the eight months ending Aug. 31:

|               | August.  | 1883.    | 1884.     | 1883.     |
|---------------|----------|----------|-----------|-----------|
| Earnings..... | \$78,767 | \$92,445 | \$476,047 | \$527,364 |
| Expenses..... | 48,825   | 59,652   | 410,942   | 430,032   |

Net earnings.....\$29,942

For the eight months the gross earnings decreased \$51,317,

or 9.7 per cent., and the expenses \$19,090, or 4.4 per cent., leaving a decrease of \$32,327, or 33.3 per cent., in net earnings.

**Shenango & Allegheny.**—The Receiver gives notice that the coupons on the first mortgage bonds due April 1 last will be paid on and after Sept. 30 at the National Bank of Commerce in New York.

**Springfield, Shelbyville & Mt. Carmel.**—This company have been organized, with office in Effingham, Ill., to build a road from Springfield through Shelbyville and Effingham to Mt. Carmel in Wabash County, about 140 miles. Mt. Carmel is on the Louisville, Evansville & St. Louis road.

**Toledo, Cincinnati & St. Louis.**—Messrs. George N. Smalley, Jonathan Dwight, I. A. Adams and Austin Corbin, the committee of St. Louis Division bondholders, issued a circular giving notice that they have filed a formal acceptance of their powers and duties, and that the International Trust Co., of Boston, has also accepted its trust. They further say, "that they have taken, and are now conducting, legal measures to protect, and as far as possible to preserve, your rights and interests in the pending litigation, and are prepared to follow the proceedings with vigilance and energy. They have already in their possession and control (being the property of the individual members of the committee and others) sufficient bonds to serve, as they are advised, all of the purposes of the proceedings for the time being; and they have therefore decided to make no further calls upon the subscribers to the agreement for the deposit of their bonds, until they shall be needed at the end of the litigation or for some definite use in connection with the reorganization of the property. Bondholders, subscribers to the agreement, will be informed, from time to time, of the progress of their business, and ample notice will be given of any call for the deposit of bonds."

**West Jersey.**—This company's statement for August and the eight months from Jan. 1 to Aug. 31, is as follows:

|                        | August.   | 1883.     | 1884.     | 1883.     |
|------------------------|-----------|-----------|-----------|-----------|
| Earnings.....          | \$223,367 | \$215,986 | \$929,409 | \$871,992 |
| Expenses.....          | 101,542   | 95,446    | 542,356   | 500,457   |
| Net earnings.....      | \$121,825 | \$120,540 | \$387,053 | \$371,535 |
| Per cent. of exps..... | 45.5      | 44.7      | 58.3      | 57.4      |

For the eight months the gross earnings increased \$57,417, or 6.6 per cent., while the expenses increased \$41,799, or 8.3 per cent., leaving a gain of \$15,618, or 4.2 per cent., in net earnings. August is usually the month of heaviest earnings on this road, as summer and excursion travel is then at its height.

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## Memphis & Charleston.

This company owns a line from Memphis, Tenn., to Stevenson, Ala., 272 miles, with a branch to Somerville, 20 miles. It also uses under lease the Nashville, Chattanooga & St. Louis track from Stevenson to Chattanooga, 38 miles, making 330 miles in all. The road is leased to the East Tennessee, Virginia & Georgia Co., but its accounts are stated separately. The following brief statement is for the year ending June 30.

The bonded debt at the close of the year was \$4,528,000 and the floating debt \$287,485. The funded debt was increased during the year by the issue of \$308,000 of the second-mortgage bonds authorized nearly a year ago.

The earnings for the year were as follows:

|               | 1883-84.    | 1882-83.    | Increase. |
|---------------|-------------|-------------|-----------|
| Earnings..... | \$1,394,019 | \$1,236,723 | \$157,296 |
| Expenses..... | 658,108     | 845,498     | 115,010   |

Net earnings.....\$735,911

Gross earn. per mile.....4.224

Net.....1.321

Per cent. of exps.....58.73

The interest on bonded debt was \$316,680 and on floatin



interest on the outstanding bonds.